TECHNOLOGY DEPT.

Gas Journal

ANNUAL REVIEW NUMBER

VOL. 288. 108th YEAR. LONDON, DECEMBER 26, 1956. Nº 4876. PRICE 1/6

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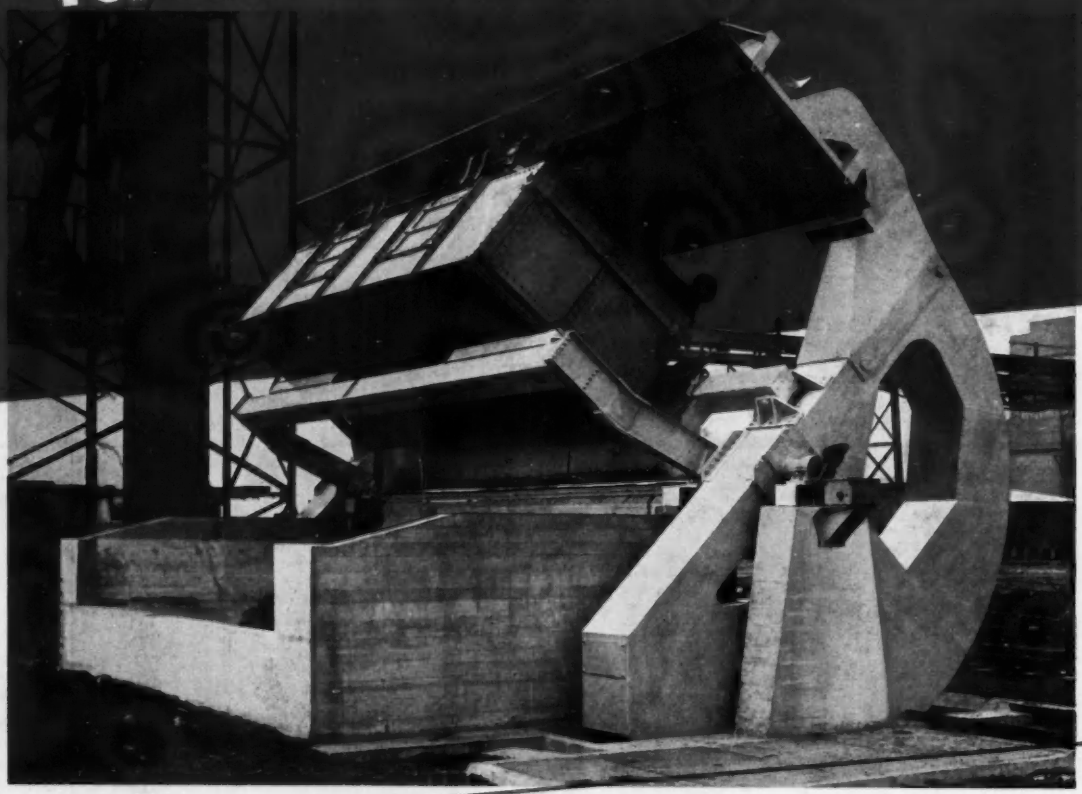
JAN 1957
DETROIT

For Mechanical Handling Plant



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Note :—
Sturdy construction and clean lines.
Gear Drive throughout—No ropes employed.
Pivot Bearing each side of each sector.

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* vertical reciprocating compressors FOR GAS

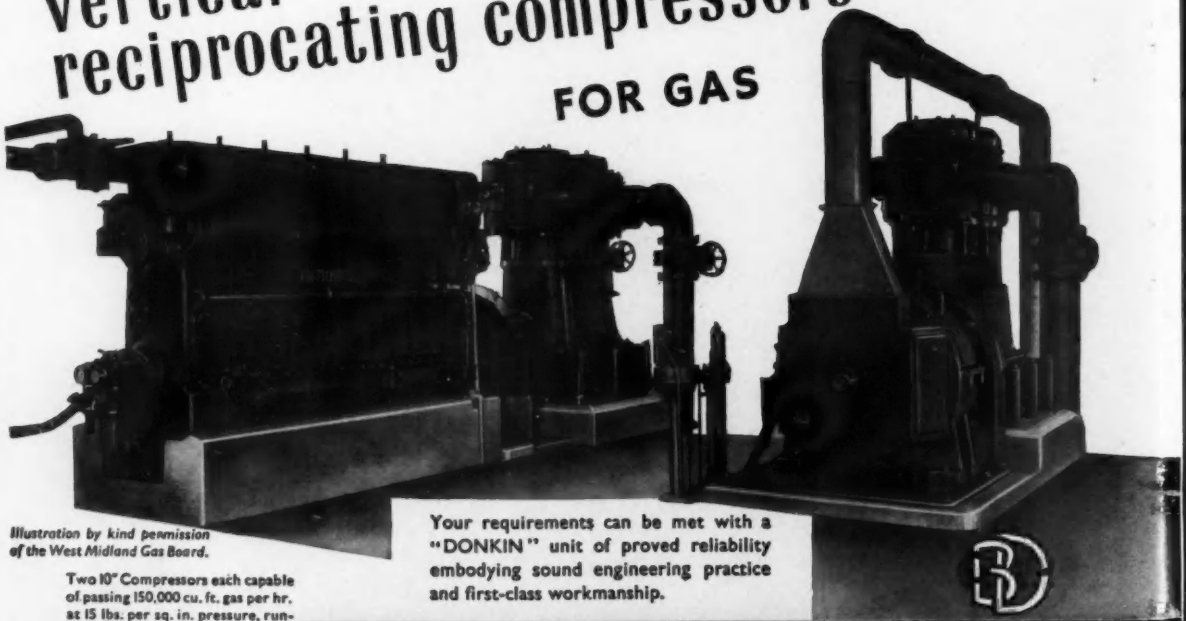

Illustration by kind permission of the West Midland Gas Board.

Two 10" Compressors each capable of passing 150,000 cu. ft. gas per hr. at 15 lbs. per sq. in. pressure, running at 420 r.p.m., one driven by a Gas-Oil Engine and one driven by a pressurised variable-speed Electric Motor with automatic control.

Your requirements can be met with a "DONKIN" unit of proved reliability embodying sound engineering practice and first-class workmanship.

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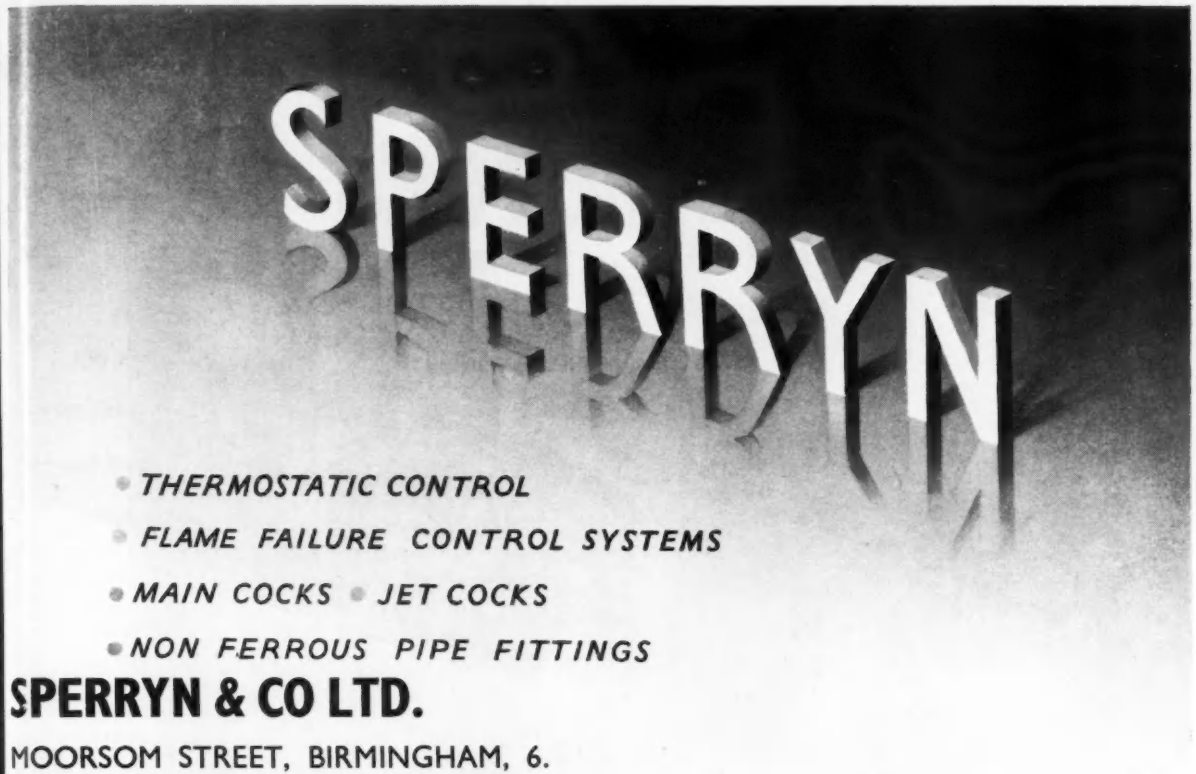

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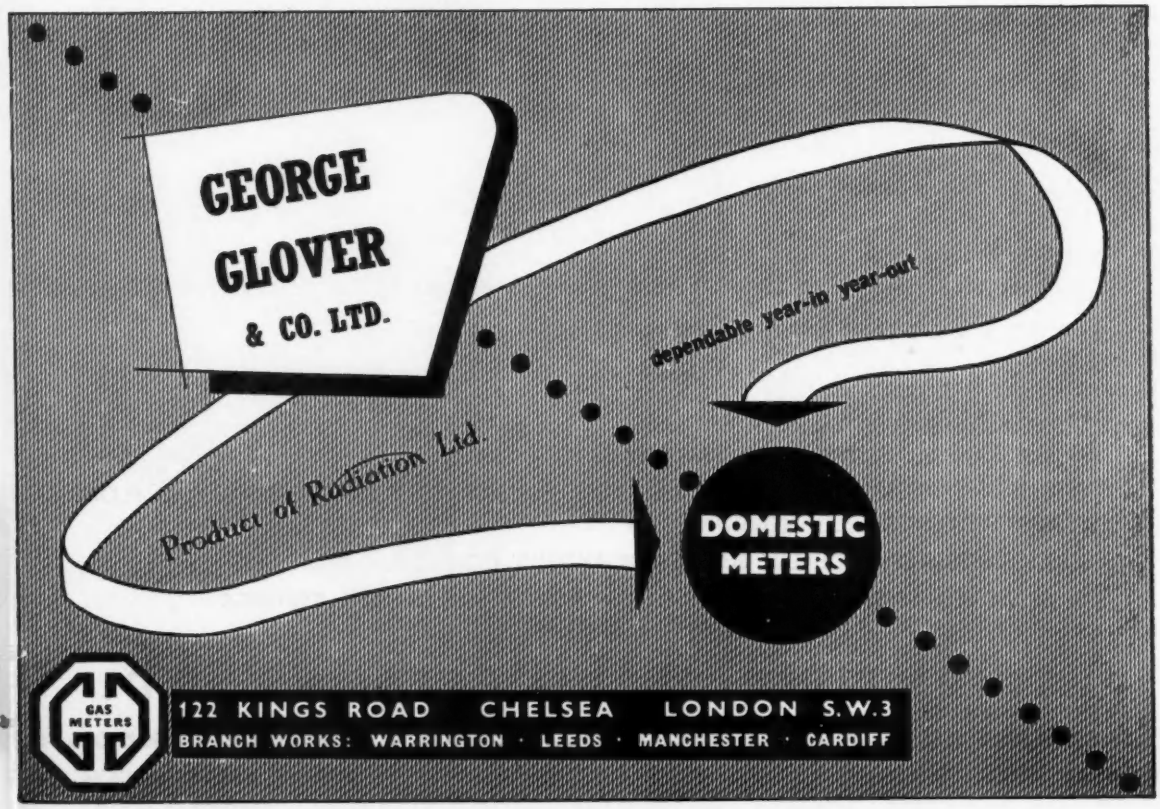
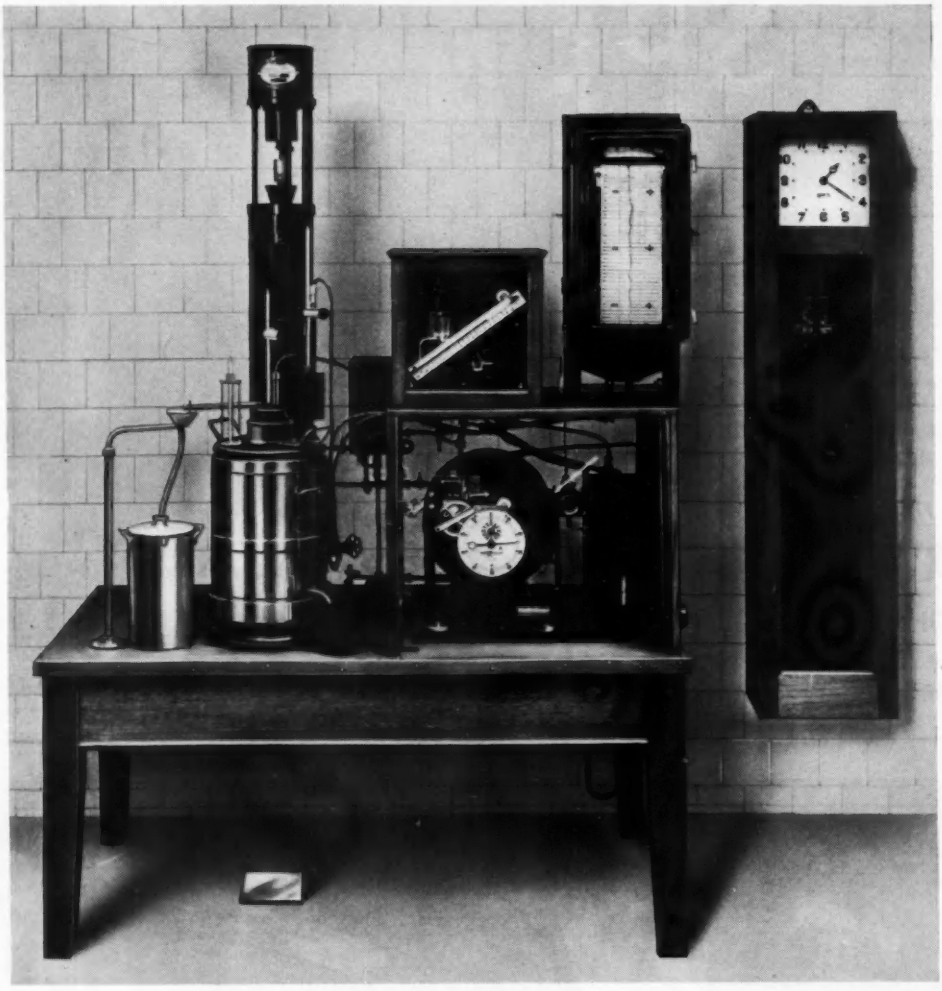


THE — NEW DESIGN

— FAIRWEATHER RECORDING CALORIMETER, MARK II



The new Fairweather Recording Calorimeter, Mark II, possesses all the accuracy and efficiency of its larger predecessor, but with many important improvements—

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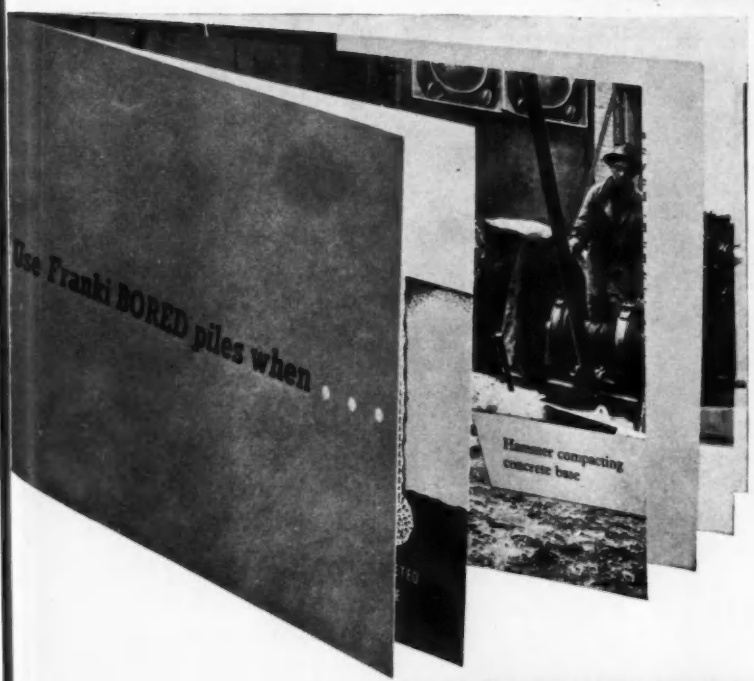

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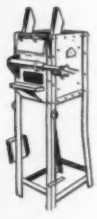

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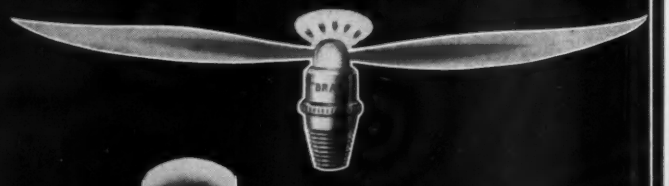

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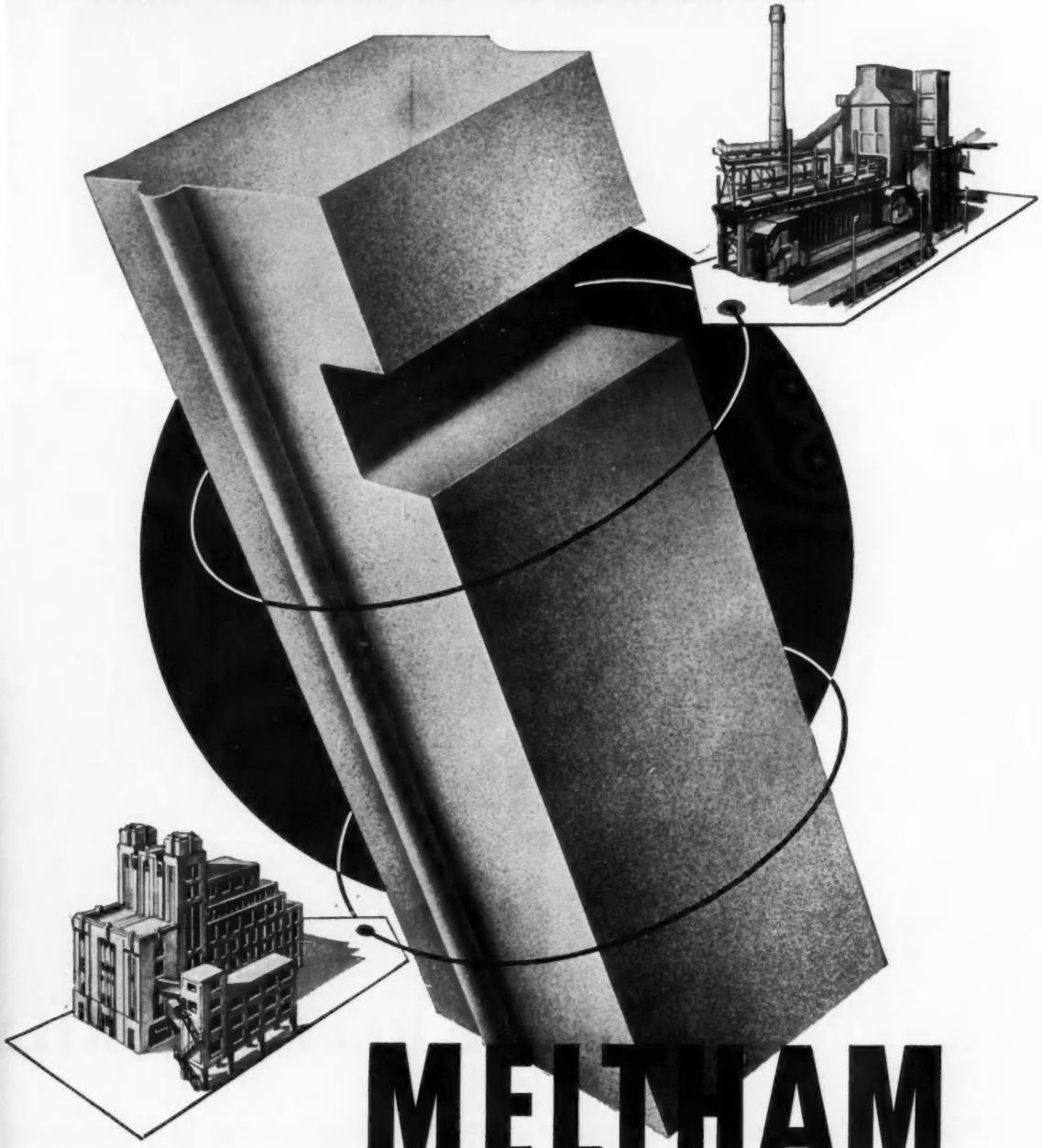

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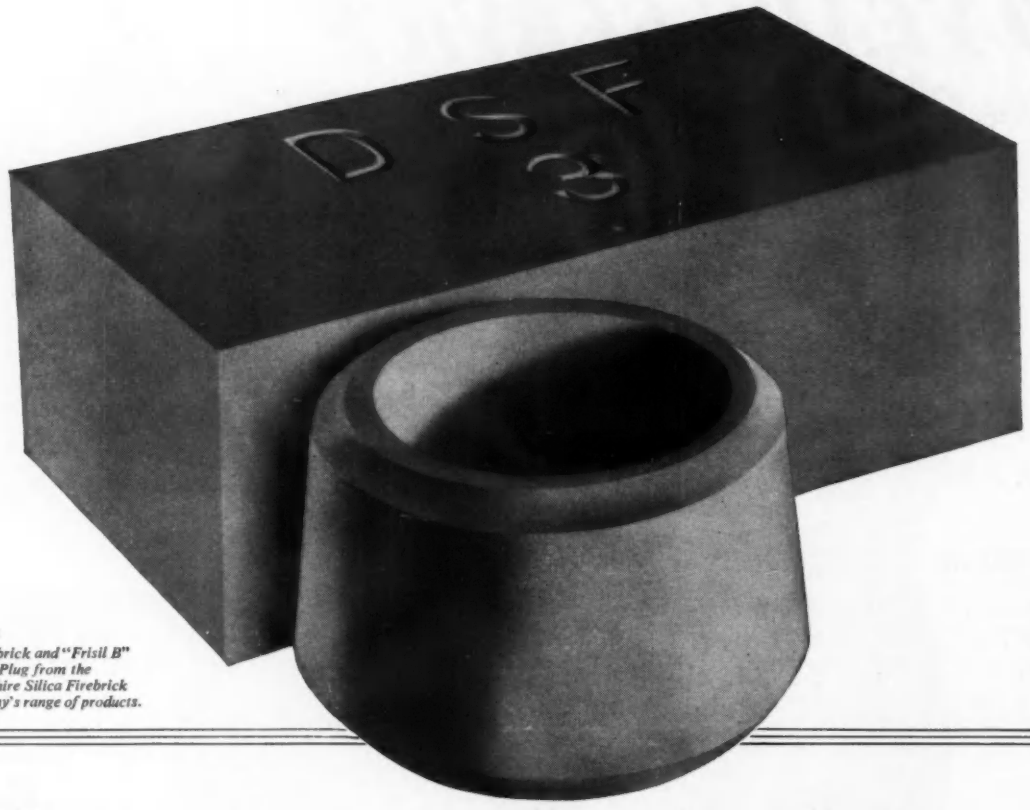

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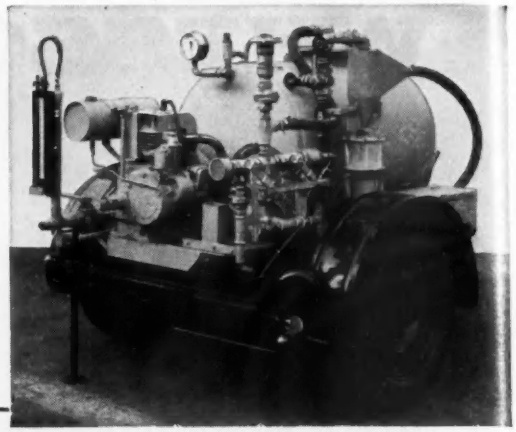
An advertisement of WHESSOE LIMITED Darlington and London

W.91

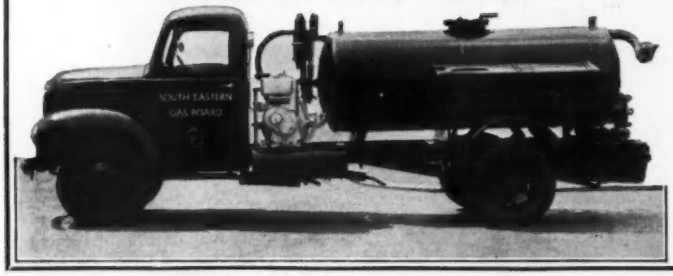
CLEANING BLOCKED SERVICE PIPES METHODS REVOLUTIONISED BY

ALLAN TAYLOR SERVICE PIPE CLEANING OUTFIT

The 75 gallon Allan Taylor pressure/vacuum service cleaning equipment complete with exhauster which can be used for vacuum or pressure. Normally used as a trailer unit and towed by a 10 cwt. van. Visible in the photograph (*right*) are the cyclone and test bar. This additional equipment enables the operator to make pressure tests before and after cleaning the service pipe, the test taps passing 50 cu. ft. or 100 cu. ft. as required. By using the Cyclone the dust drawn from the service pipe is deposited in the sight glass for inspection and can then pass into the easily removable container below. The arrangement further enables the operator at the machine to determine whether or not there has been any success with a cleaning operation. The extractor also prevents the greater part of the rust dust from entering the 75 gallon cylinder.



SYPHON EMPTYING OUTFIT



The Vacuum Syphon Emptying Outfit illustrated is mounted on a 4 ton **Thames** Chassis. A 600 gallon galvanised tank is fitted. A rotary type exhauster is driven by a 4 b.h.p. four-stroke air cooled engine, mounted on a sub-frame behind the cab. The tank is fitted with a flame-proof vent and the outfit can be used for high or low pressure syphon emptying. A large manhole at the rear allows the tank to be cleaned easily. A sight glass is fitted to enable the operator to know when the Syphon is emptied. Twenty-five feet of 1½ in. suction hose is supplied with the outfit. The outfit can be used for vacuum or pressure working.

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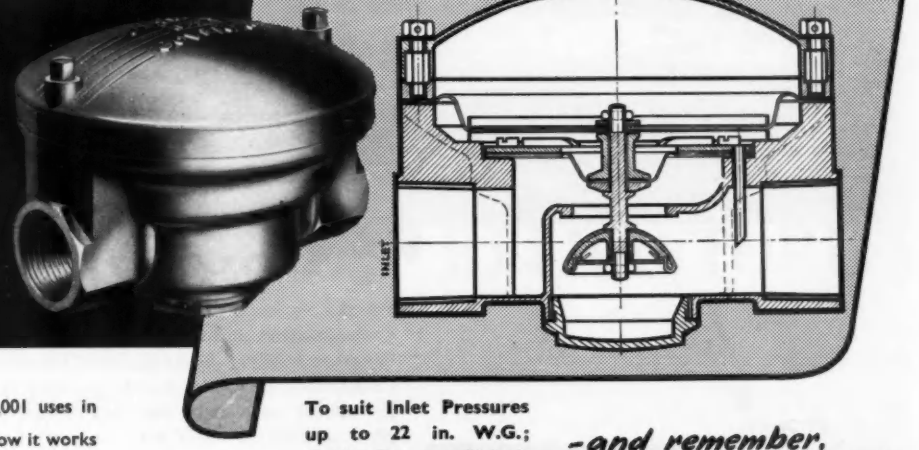
The JEAVONS J47 GOVERNOR



Here is a Governor with 1,001 uses in the Gas Industry . . . See how it works . . . See also the many other types of Governors for Natural and Manufactured Gases — described and illustrated in literature available on request.

To suit Inlet Pressures up to 22 in. W.G.; Outlet Pressure 2½ inch W.G. (adjustable). Sizes ¾ inch to 2 inch.

-and remember, ***THE GOVERNOR'S NAME is JEAVONS.***

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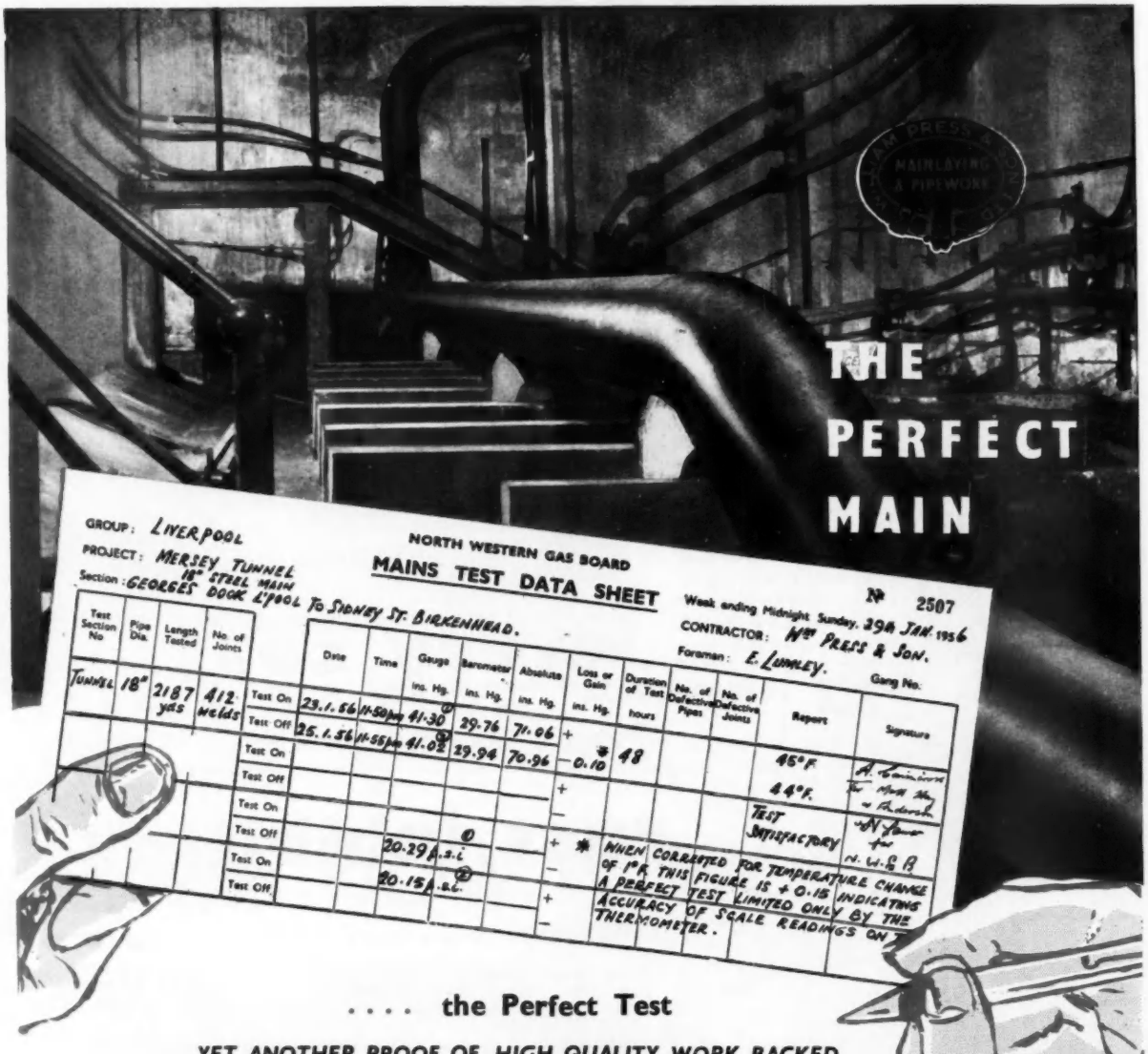

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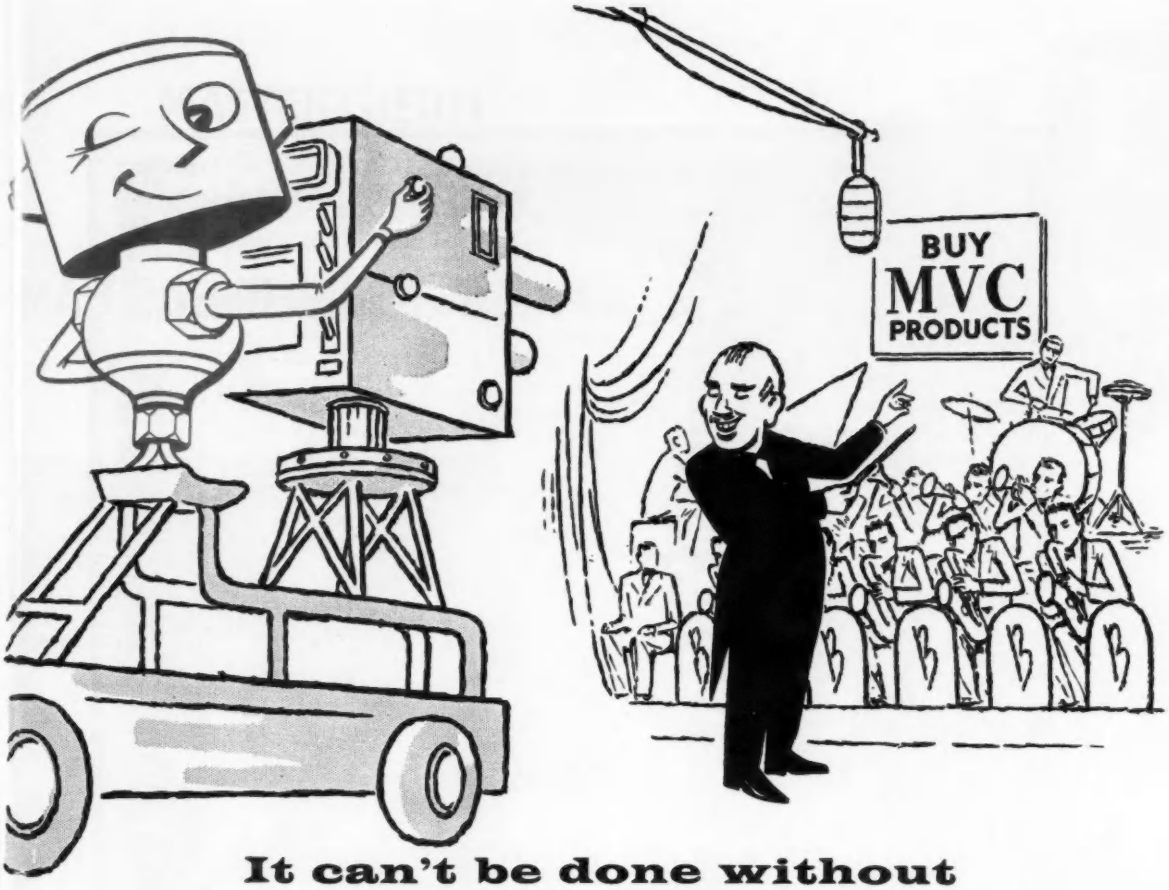

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In an incredibly short space of time, 'telly-welly' has become an accepted part of our day-to-day living. Hour after hour this modern invention keeps us entertained and we don't really give much thought to the efficient organisation behind the entertainment, the skilled operators and complicated mechanism that controls what we see on our fireside screen.

Just as unobtrusively, reliably and efficiently do Magnetic Valves, with over 25 years of valve 'know-how' built into them, control air, oil, steam, coal gas — in fact, many industrial liquids or gases. They can do this automatically or remotely, and without the aid of glands, stuffing-boxes, or driving-shafts. Send for our illustrated literature detailing the standard range. Special valves up to 12 in. orifice can be supplied.

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VALVES DESIGNED for special conditions.

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is of the semi-automatic hand opening electrically maintained pattern, ensuring instantaneous and complete closure in the event of current interruption. The valve is of "packless" construction, and can be supplied in sizes ranging from ¼" up to and including 12". Alternative types of hand operating gear are available including hand lever, and push-up spring return patterns. The installation of this valve is an essential precaution with all types of gas and oil fired equipment and ensures complete isolation of the fuel supply in the event of an interruption of the electrical supply WITHOUT automatic opening when such electrical supply is restored. A Flameproof solenoid housing, Buxton Certified, can be fitted where required.

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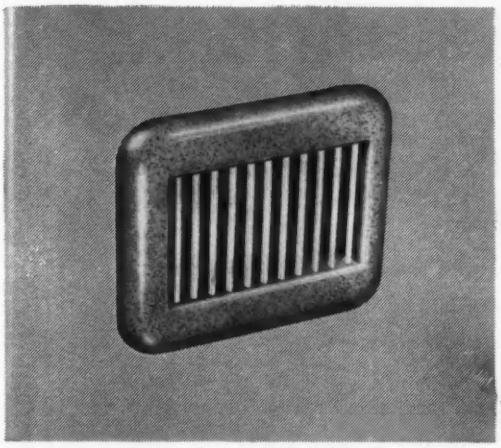

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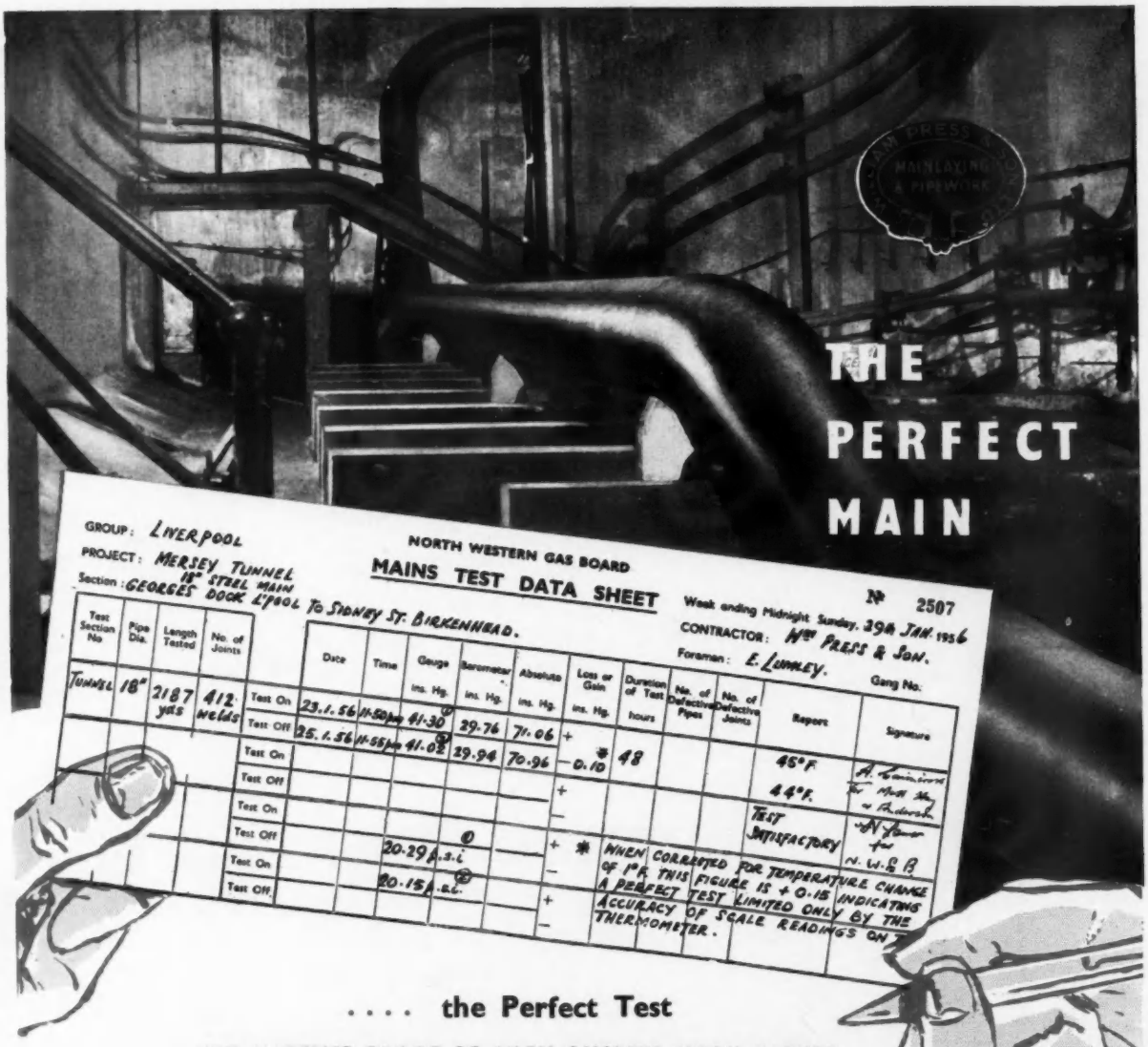
THE PERFECT MAIN
NORTH WESTERN GAS BOARD
MAINS TEST DATA SHEET
GROUP: LIVERPOOL
PROJECT: MERSEY TUNNEL 18" STEEL MAIN
Section: GEORGES DOCK L'POOL To SIDNEY ST. BIRKENHEAD.
№ 2507
Week ending Midnight Sunday, 29th JAN. 1956
CONTRACTOR: Wm PRESS & SON.
Foreman: E. LUMLEY.
Test Section No | Pipe Dia. | Length Tested | No. of Joints
TUNNEL | 18" | 2187 yds | 412 welds
Date | Time | Gauge ins. Hg. | Barometer ins. Hg. | Absolute ins. Hg. | Loss or Gain ins. Hg. | Duration of Test hours | No. of Defective Pipes | No. of Defective Joints | Report | Signature | Gang No.
Test On 23.1.56 11.50 p.m. 41.30 29.76 71.06
Test Off 25.1.56 11.55 p.m. 41.02 29.94 70.96 − 0.10 48
Test On
Test Off
Test On
Test Off
Test On
Test Off
20.29 a.s.i
20.15 a.s.i
45°F.
44°F.
TEST SATISFACTORY
N. W. G. B.
WHEN CORRECTED FOR TEMPERATURE CHANGE OF 1°F. THIS FIGURE IS + 0.15 INDICATING A PERFECT TEST LIMITED ONLY BY THE ACCURACY OF SCALE READINGS ON THERMOMETER.

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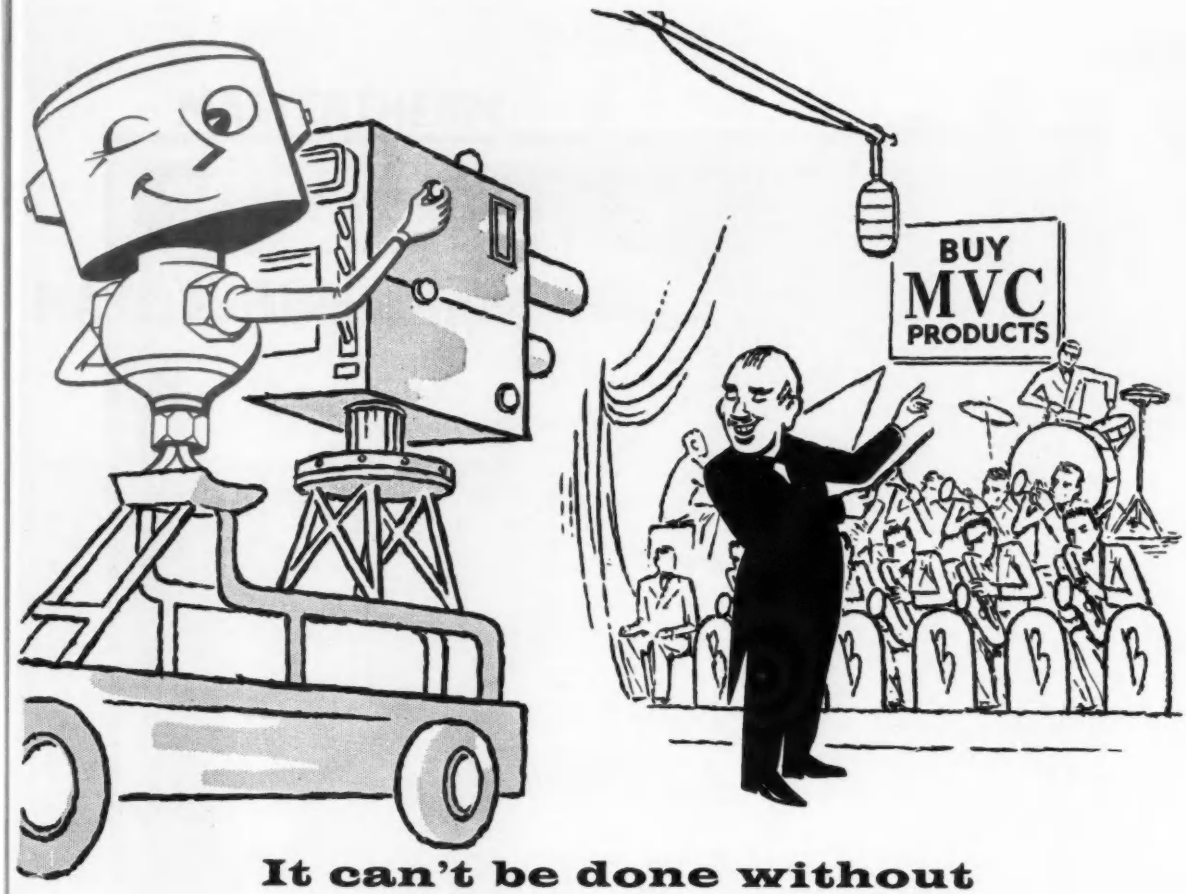

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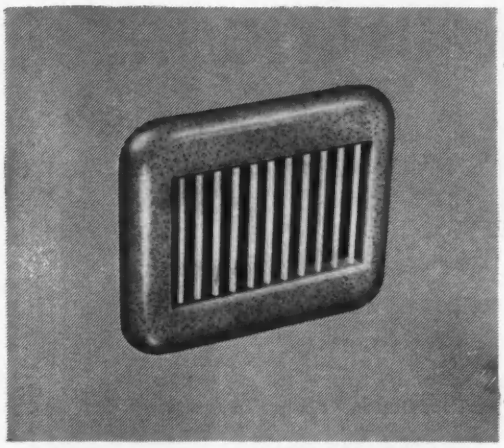

British pat. nos. 741660 & 7004980

An overhead heater with patent burner elements which allows it to be tilted at any angle from 30° to 75°. In lofty buildings, the Mastertherm can be fitted at high level and maximum tilt, giving a wide distribution of heat. Equally suitable for low ceilings, it may be fixed at reduced height with minimum tilt. In three sizes, for either wall or suspension fitting. Consumption: 10,000, 20,000 or 30,000 B.T.U.'s per hour. Other "high level" heaters up to 160,000 B.T.U.'s output are also available.

We can undertake complete installations.

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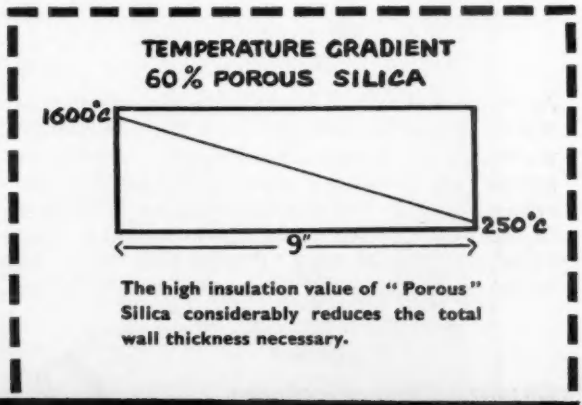
A really high-temperature INSULATION...

- Developed and manufactured by the Consett Iron Company Limited, "Porous" Silica Insulating Bricks have become established as an important addition to the existing range of refractories.
- Possessing the advantages of a normal silica brick combined with high thermal efficiency, "Porous" Silica offers to the furnace builder a spalling resistant silica refractory suitable for hot-face insulation at high temperatures.
- Already in wide use in the glass industry for roof insulation "Porous" Silica Brick is also suitable for the construction of kiln roofs and side walls where its light weight and insulating properties are important factors in design and service.
- "Porous" Silica Bricks are made in two grades, 60% and 50% porosity, the latter possessing a higher mechanical strength, rendering it the most suitable for constructional work.

Further information will be gladly supplied on request.



The high insulation value of "Porous" Silica considerably reduces the total wall thickness necessary.

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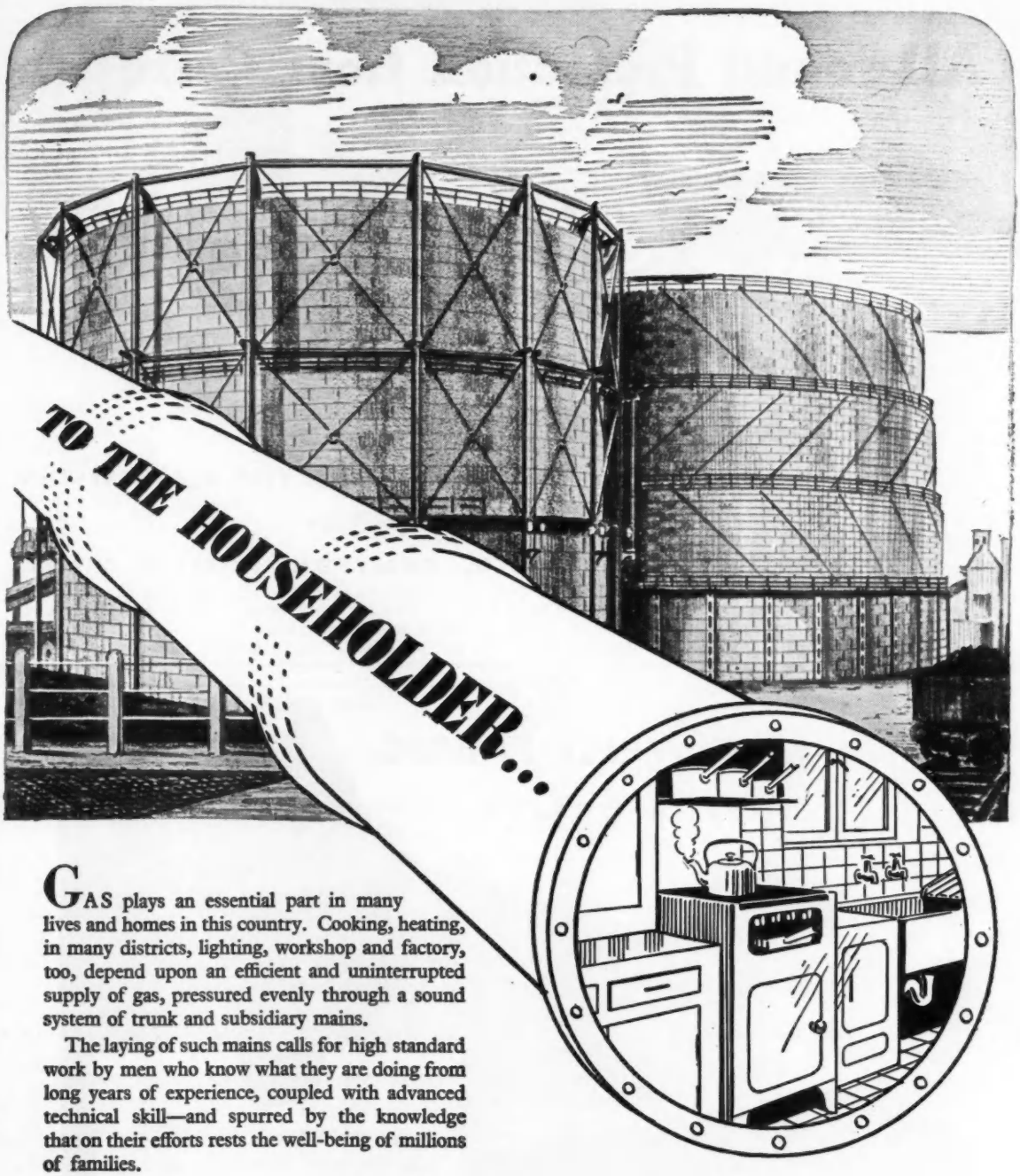

GAS plays an essential part in many lives and homes in this country. Cooking, heating, in many districts, lighting, workshop and factory, too, depend upon an efficient and uninterrupted supply of gas, pressured evenly through a sound system of trunk and subsidiary mains.

The laying of such mains calls for high standard work by men who know what they are doing from long years of experience, coupled with advanced technical skill—and spurred by the knowledge that on their efforts rests the well-being of millions of families.

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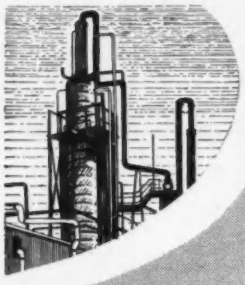
As a permanent barrier against corrosion, 'Humidine' non-setting paint provides complete protection for lower lift plates and cuppings, purifier lutes, governor bells and meter drums. It never dries or cracks and is impervious to moisture

Wherever the metal to be painted is in physical contact—use Aspinalls' Alkyd Gasholder Paints, they are worthy companions to 'Humidine'



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Girdex Weld Fabric Screens resist even the most abrasive materials. Users find also increased flow, freedom from clogging and distortion and maximum void space. Full details of construction and applications on request.

A GIRDEX PRODUCT

Photograph by courtesy of W. J. Jenkins & Co. Ltd., Retford, Notts.

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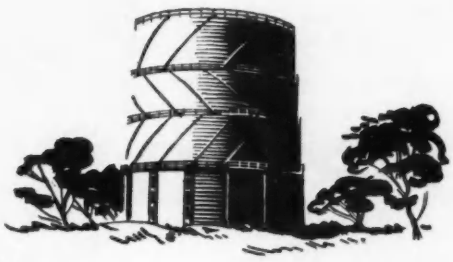
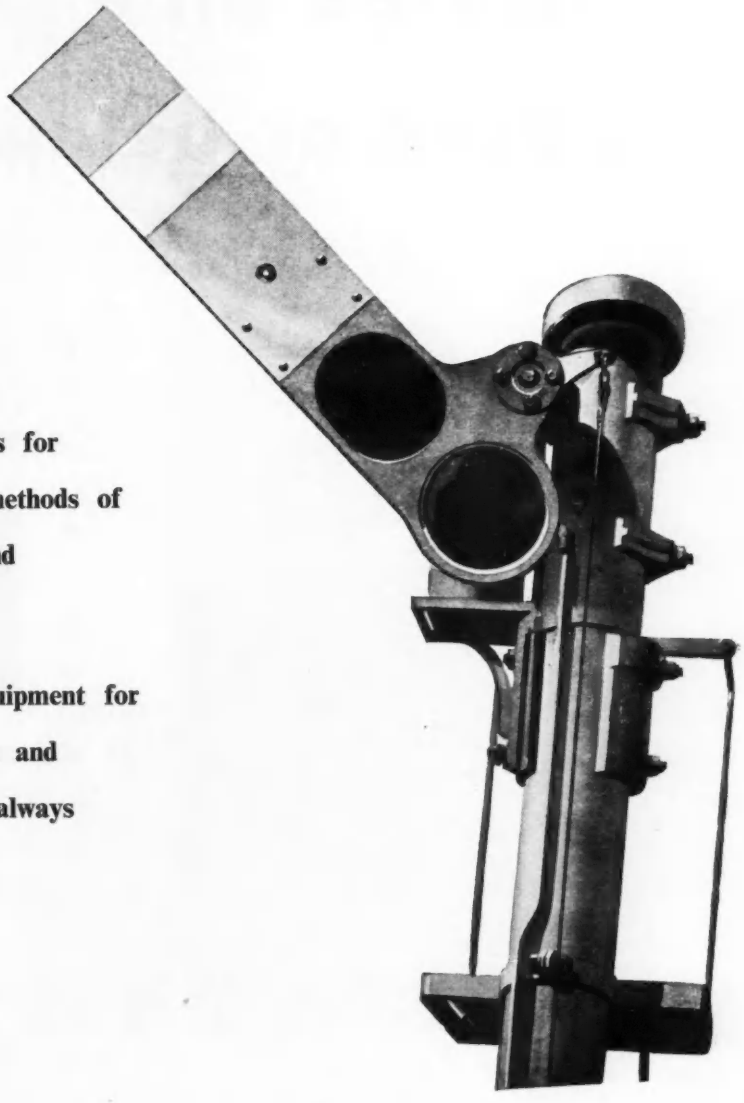
S.19

Right ahead with OXLEY





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OX 5

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LASSOVIC PWG

tackles pipe corrosion above or below ground

Photo by courtesy of Enfield Cable Co Ltd

- Lassovic PWG is a tape made from a polyvinyl chloride base, coated on one side with pressure-sensitive key-coated adhesive.
- It can be swiftly and economically applied by hand or machine to pipe lines carrying oil, water, gas or high voltage electricity. It is most suitable for protecting metal structures.
- It is easily moulded at joints or awkward corners, has excellent electrical insulation properties, and is highly resistant to the most aggressive atmospheric or soil conditions.

THIS MEANS a reduction in your maintenance costs, fewer replacements and far less danger of faults or failures.

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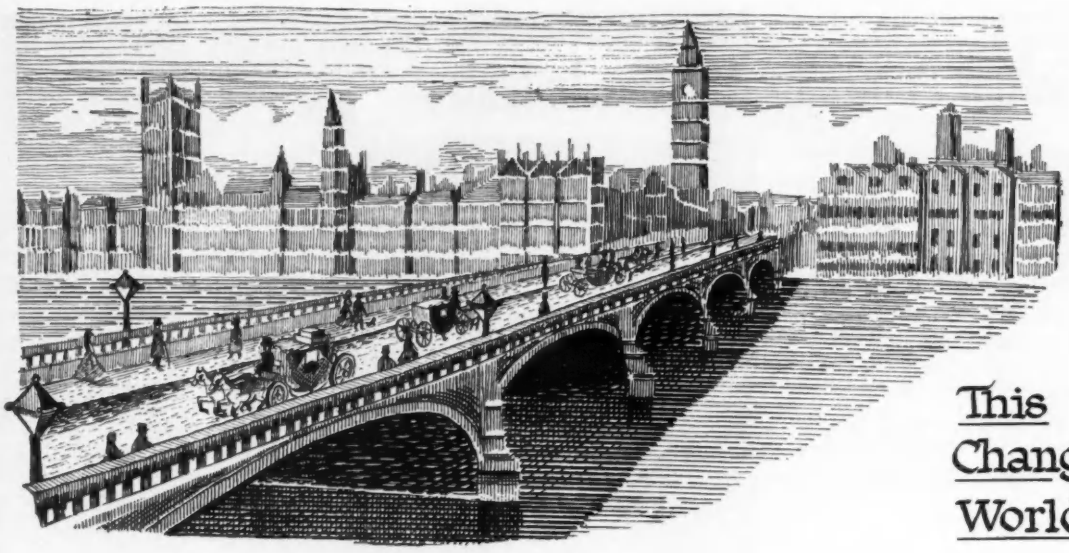


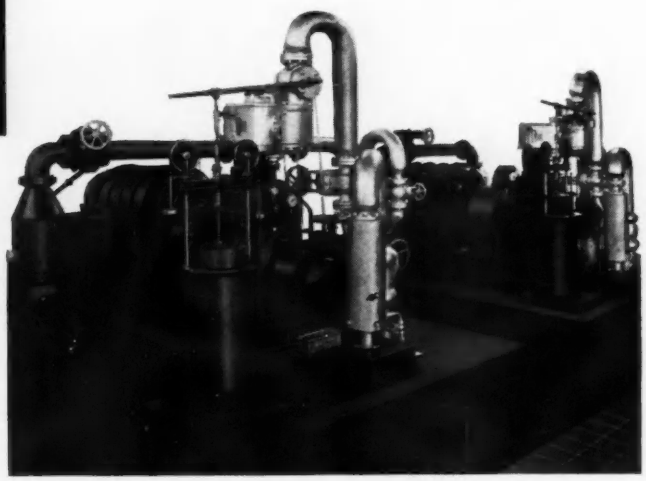
This Changing World

Street lighting by Gas

Although Westminster Bridge had been lit by gas in 1813, it was to be many years yet before gas illumination became general in the streets of the principal cities.

By 1855, however, the potential gas sales in London were large enough to stimulate fierce competition among four or five rival concerns, while from the Phoenix Iron works, at Stroud in Gloucestershire, were coming the first of the many machines that were destined to play such an important part in the development of the gas industry.

Two steam-engine driven Waller Roots Exhauster Sets, capacity 200,000 cu. ft. per hr. each, installed at the Slough Station of the North Thames Gas Board.



GEORGE
WALLER
& SON LTD.

Phoenix Iron Works, Stroud, Glos.
Telephone: Brimscombe 2301-2

Photography by courtesy of the North Thames Gas Board

Member of the Society of British Gas Industries

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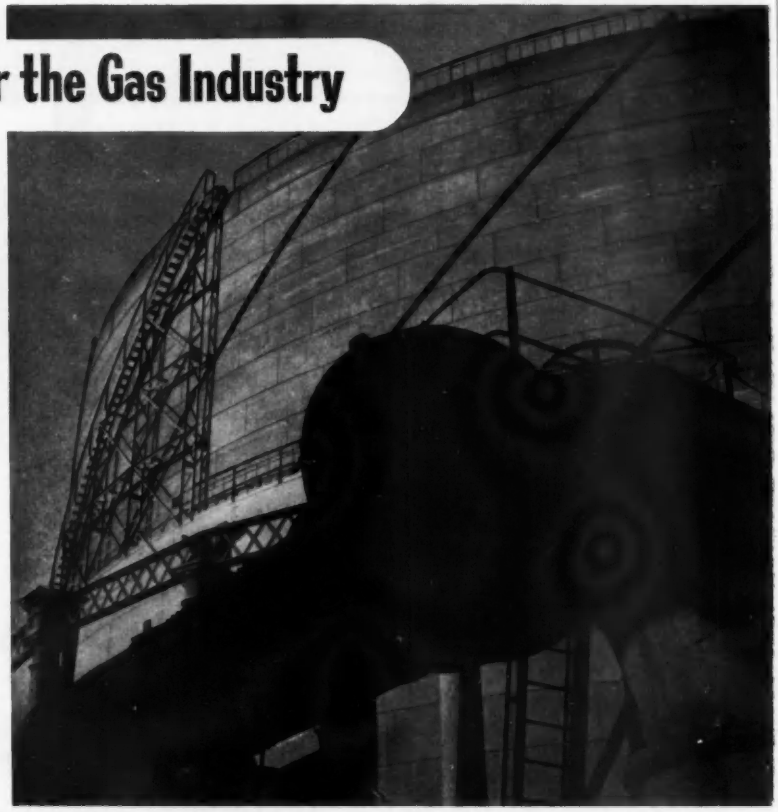
Photograph by courtesy of the Gas Council



Aluminium Paints for the Gas Industry

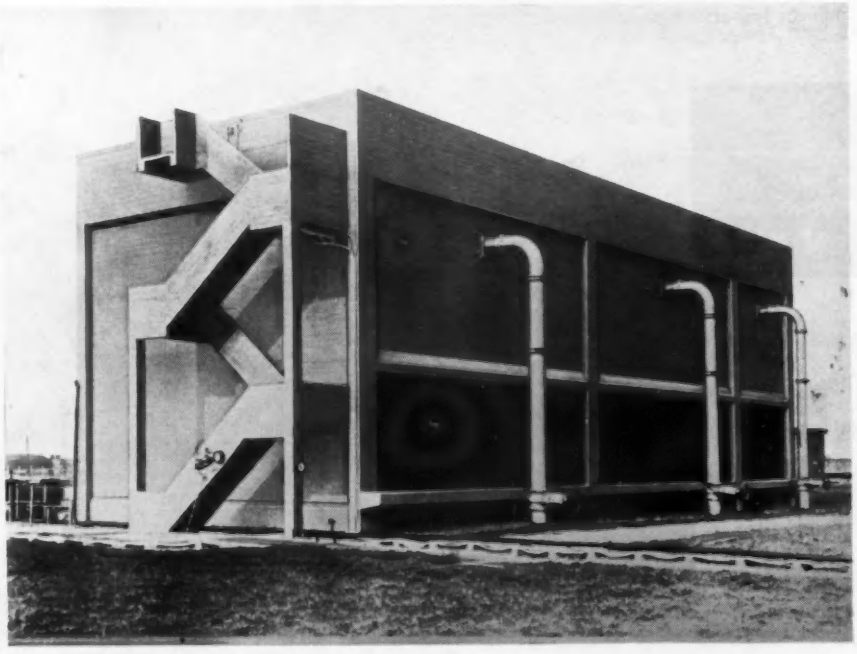
"LUMEROS X" High Heat Resisting Paint.
Represents the latest and greatest advances in the protection of iron and steel subject to very high temperatures. "LUMEROS X" gives adequate protection at temperatures up to 600°C. Good water resistance. No undercoat required. Available in Aluminium or Black.

"METTAL" Aluminium Paint.
A general purpose paint of the highest quality and durability and possessing great brilliance. For indoor and outdoor use. Whilst not specifically designed as a heat resisting coating "METTAL" will stand temperatures around 212°F (100°C).

"METTAL" (Thermal).
Specifically designed for indoor and outdoor use on metal surfaces up to 350° F (177°C).

BRITISH PAINTS LIMITED

PORTLAND ROAD, NEWCASTLE-UPON-TYNE, 2.-CREWE HOUSE, CURZON STREET, LONDON, W.1



WATER COOLING BY MODERN METHODS

The Tower illustrated is of the induced draught type fitted with fans in the roof.

Specifically designed to give long range cooling or close approach between water temperature and wet bulb.

THE DAVENPORT ENGINEERING CO., LIMITED
BRADFORD

I.C.I tubes

Copper Tubes from Kirkby
to BS 659 and BS 1386 for gas, water and waste services. Tubes for radiant panel heating, locomotive and ship services, refrigerators, chemical and general engineering.

'INTEX P.T.'

& fittings

Tube Fittings from Fyffe's to BS 864
'INSTANTOR'
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Easy
Quick
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IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.I.

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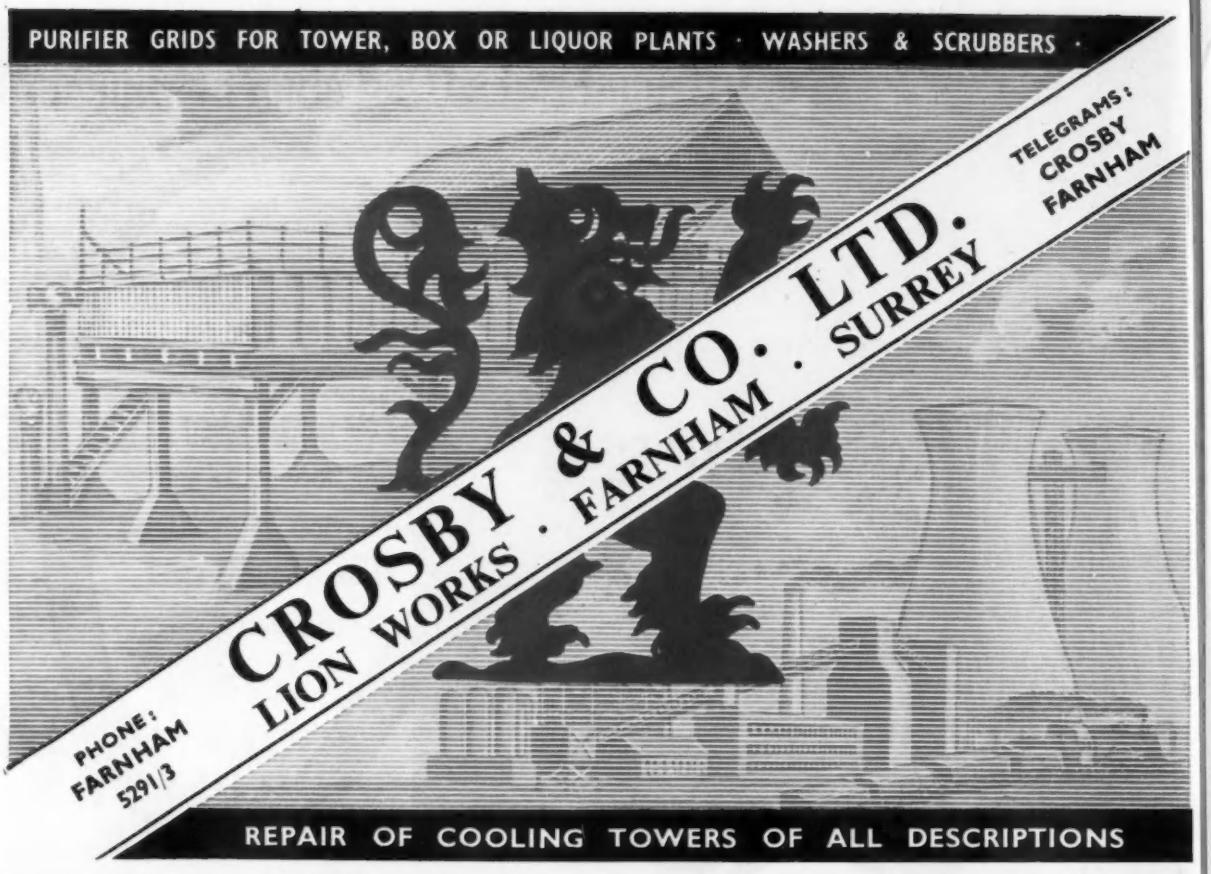

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THE STEEL TUBE AGE

S & L steel main, 14 in. outside diameter,
with sleeve welded joints.
This main, laid over Merthyr Mountain, forms part
of the Wales Gas Board, South Wales Gas Grid.

STEWARTS AND LLOYDS LIMITED

GLASGOW · BIRMINGHAM · LONDON

The largest manufacturers of steel tubes in Europe

S&L

ELECTRIC

CAPSTAN WINCHES

Built with accepted ACE reliability, the conservative rating and generous proportions of these robustly constructed winches guarantees continuous, trouble-free operation at full load. Designed for box enclosure or direct mounting in pit, they are ideally suited for truck and barge haulage in railway sidings, docks and harbours; and for moving furnace bogeys, mining trucks and kiln cars.

Capacity **1 to 5 tons**
Rope Speeds
45 to 160 ft. per min.
For A.C.
or D.C. operation

Variable speed units employing dual motors can be supplied against specific enquiries.
FREE RUNNING FAIRLEAD ASSEMBLIES ARE AVAILABLE.
Please write for descriptive Leaflet No. 9667

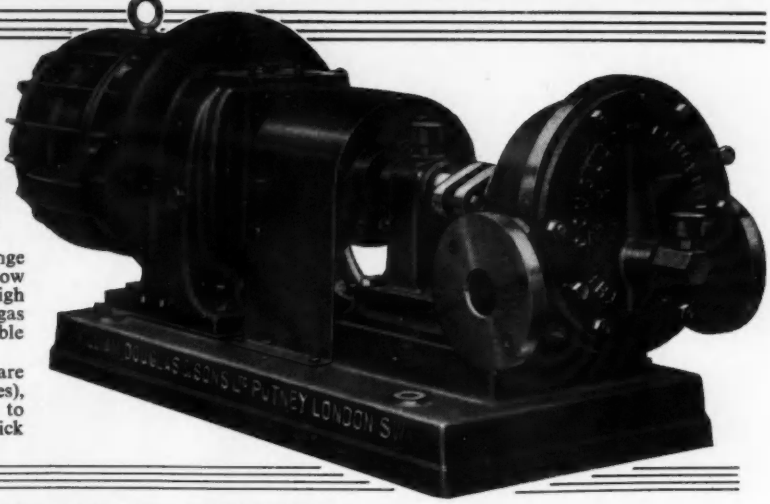
ACE

WINCHES — *always pull their weight*

A.C.E. MACHINERY LIMITED, HARLEQUIN AVENUE, GREAT WEST ROAD, BRENTFORD, MIDDX
Telephone: EALing 6262 (5 lines) And at BRIXTON, S.W.2.

DOUGLAS PUMPS FOR EVERY PURPOSE

*Slow Speed *Positive Action
*Powerful Suction *Robust Design



There is a Douglas Pump for your need be it Transfer or Handling of Oils, Gas Works Tar, Ammoniacal Liquor, Benzole or any other Viscous or Volatile Fluids encountered in gas works.
Douglas Pumps will operate over a wide range of temperatures and because of their slow speeds are ideal for pumping fluids of high viscosity. They will pump vapours without gas locking which makes them also highly suitable for volatile fluids.
Additional advantages of Douglas Pumps are smooth flowing action (essential for volatiles), slow movement giving long life, ability to reverse direction of flow, and no valves to stick up. Capacities: 200—5,000 g.p.h.

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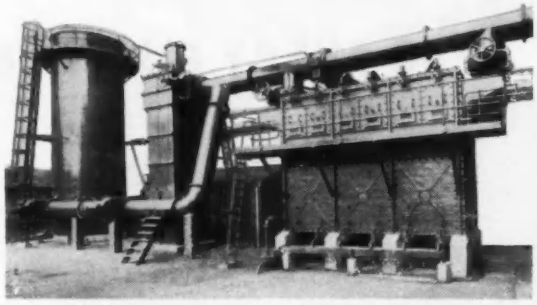
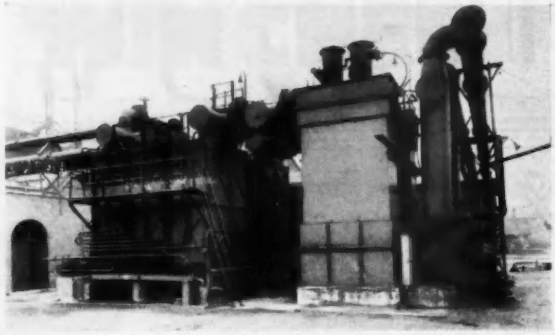
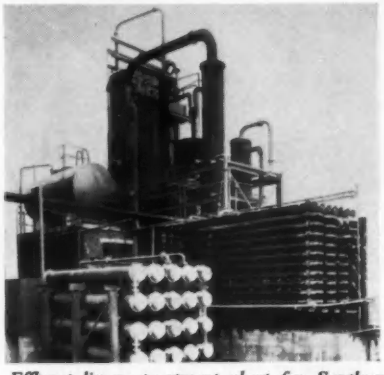
PLANT FOR THE GAS INDUSTRY



Wet purification plant comprising mild steel condenser, cast iron ammonia washer and plate-type electro-detarrer at Norwich for Eastern Gas Board.

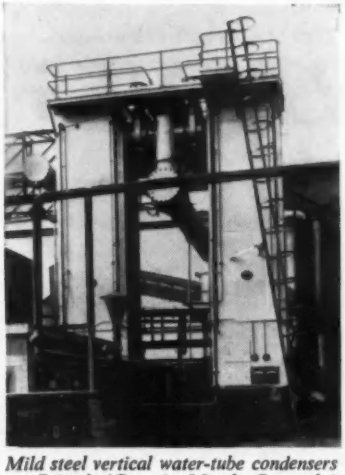


Washers and detarrers at New Wortley for North Eastern Gas Board.

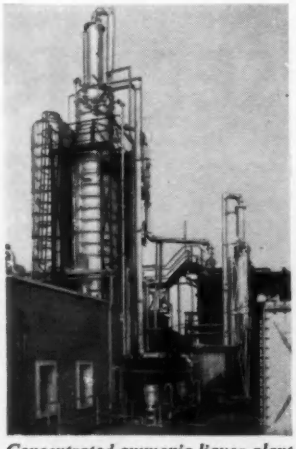


Effluent liquor treatment plant for Southern Gas Board.

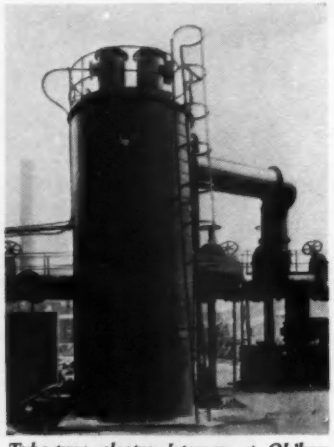
Simon-Carves design and build a complete range of gasworks ancillary plants including condensers, electro-precipitators, ammonia and naphthalene washers, and plants for benzole extraction and rectification, ammonia liquor concentration, liquid purification (H_2S removal) and effluent liquor treatment.



Mild steel vertical water-tube condensers at Bristol (Canon's Marsh Gasworks) for the South Western Gas Board.



Concentrated ammonia liquor plant at Bristol for South Western Gas Board.



Tube-type electro-detarrer at Oldham for North Western Gas Board.

Complete gasworks plant

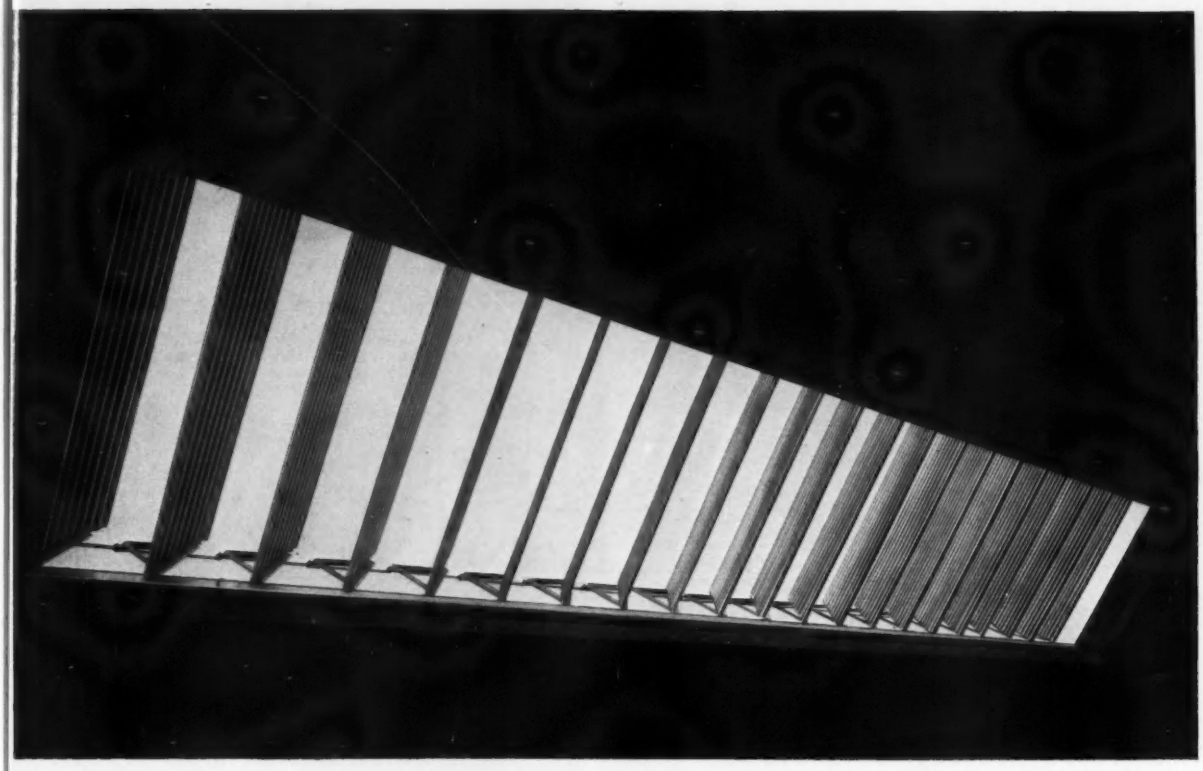
by Simon-Carves Ltd

SIMON ENGINEERING GROUP

STOCKPORT, ENGLAND

OVERSEAS COMPANIES | *Simon-Carves (Africa) (Pty) Ltd: Johannesburg* *Simon-Carves (Australia) Pty Ltd: Botany, N.S.W.*

SC 139



Press the button, and clear the air!

HILLS Roof Ventilating Shutters open wide to the sky at the touch of a button. Out go fumes, smoke and steam in a matter of seconds—and the atmosphere is kept constantly clear. With HILLS Roof Ventilating Shutters, the result is greatly improved working conditions, together with additional natural lighting. The Shutters are easily installed in any type of roof, in new or existing buildings, and are weathertight when closed. Why not ring up your nearest Hills branch and learn how efficient ventilation can help you to raise production by raising your roof.

★ *An illustrated folder describing the full range of Hills Industrial Ventilators—including Roof Ventilating Shutters, Stack Roof Ventilators and Wall-type Air Inlet Ventilators—will be sent on request.*

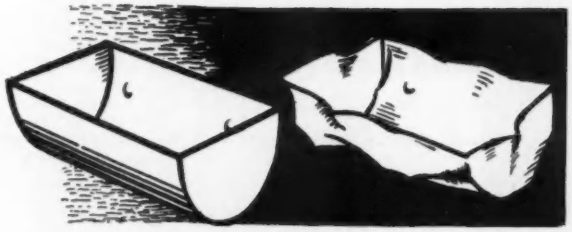
HILLS Ventilation Division

HILLS (WEST BROMWICH) LTD., ALBION ROAD, WEST BROMWICH. [West Bromwich 1811 (15 lines)]. LONDON: CHAPONE PLACE, DEAN ST., W.1. (GERrard 0526/9).
Branches at Birmingham (Midland 5175), Manchester (Blackfriars 3382/3), Bristol (24765), Newcastle-on-Tyne (25060), Glasgow (City 5564) and Belfast (26112).

EXACT DUPLICATION

This can be unexpected but when it's a case of elevator buckets we can guarantee that you won't be able "to tell 'em apart" !

You merely send us a worn out or damaged bucket, specify the number required and leave the rest to us.



INGHAM FOR STRENGTH

JOHN INGHAM & SONS, LTD.
MIDDLESTOWN · WAKEFIELD

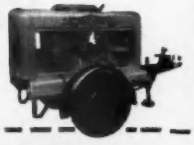
Telephone: Horbury 49/50

dm JI 52

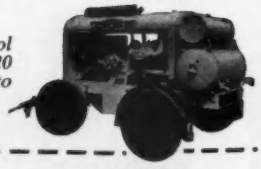
Model ATS/139/PD2-2 Tool Plant: Free Air Delivered: 120 CFM (Output guaranteed to B.S.S. 726).

10-20% more air for the same power—the secret of the greater efficiency of "BRISTOL" Duplex Airflow-Cooled 2-Stage Heavy Duty Portable Air Compressors lies in cooler (and therefore cheaper) air delivery—the essence of "BRISTOL" compressor design—obtained by 2-stage compression and patent 2-stage airflow cooling.

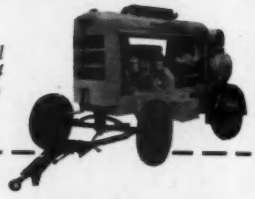
Model ATS/80/PD2—1 Tool Plant; Free Air Delivered: 68 CFM. (Output guaranteed to B.S.S. 726).



Model ATS/139/PD4—2 Tool Plant; Free Air Delivered: 120 CFM. (Output guaranteed to B.S.S. 726).



Model ATS/188/PD4—3 Tool Plant; Free Air Delivered: 164 CFM. (Output guaranteed to B.S.S. 726).

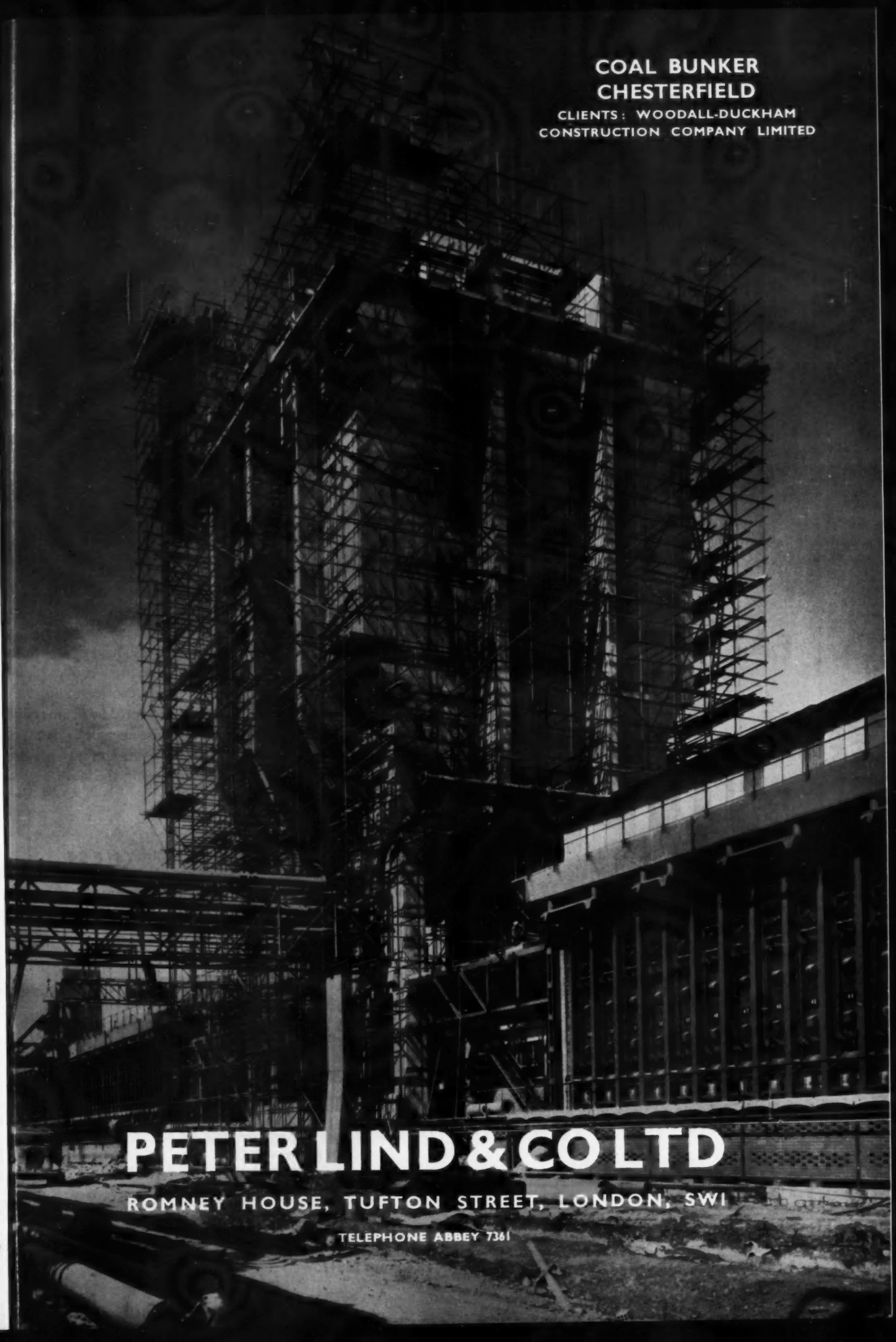


Publication No. 76 gives further information and details of the "BRISTOL" range, including all models shown on this page—send for your copy today!

BRISTOL AIR COMPRESSORS

BRISTOL PNEUMATIC TOOLS LTD., FISHPONDS, BRISTOL
Tel: Bristol 65-3264.*

dm BT.13


COAL BUNKER
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CLIENTS: WOODALL-DUCKHAM
CONSTRUCTION COMPANY LIMITED
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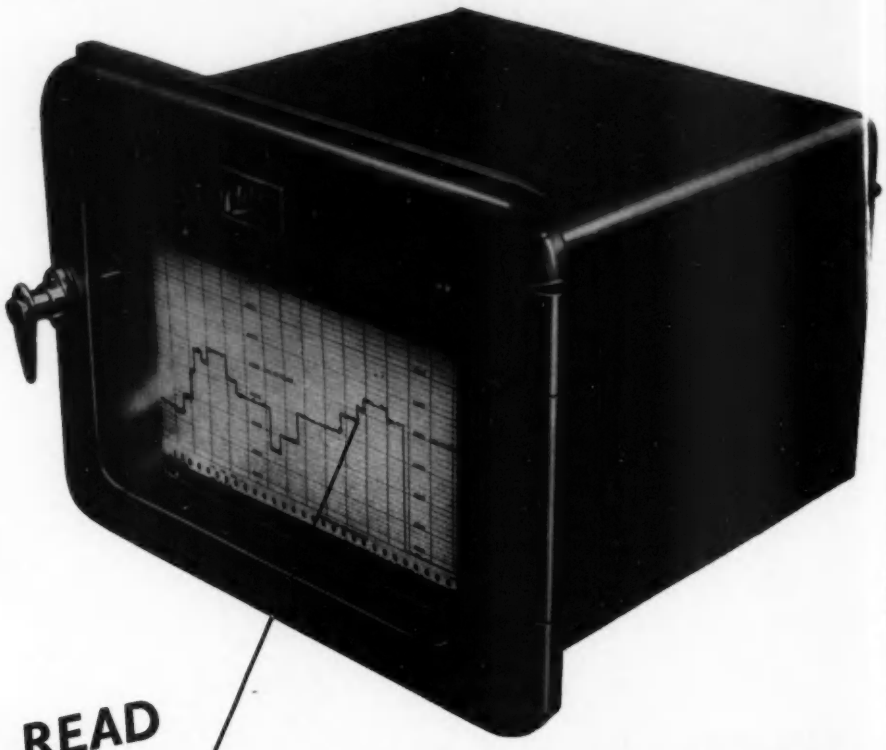

Ranges from 0·2 inches water gauge to 30 lb. per square inch. Two-pen recorders are available for process control. Differential head ranges from 1 inch water gauge up to 10 inches water gauge.

EASY TO READ

Arkon Recorders measure gas and air flow, pressure o vacuum or pressure and vacuum. They give a clea unmistakable record which you can read like a book, witho hesitation and without mistakes. You can leave the cha on for a few hours, a day, or a week—the record will always b there. Easily read, easy to look after, robust enough to stand u the job, Arkon Instruments can help the control of any proce —and their accuracy will satisfy even the boys in the lab.

FOR PROBLEMS LIKE THESE

The recording and integration of rate of flow of gas or air. The measurement of low pressures or vacua. The measurement of industrial effluents to meet the requirements of River and Sewage Boards.

Write for booklet No. 25/AR

Arkon

RECORDERS

(PATENTED)

WALKER, CROSWELLER & CO. LTD. · CHELTENHAM

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COMPLETE GASIFICATION PROCESS

USED IN CONJUNCTION WITH EXISTING CARBONISATION PLANT

GIVES MAXIMUM COKE PRODUCTION

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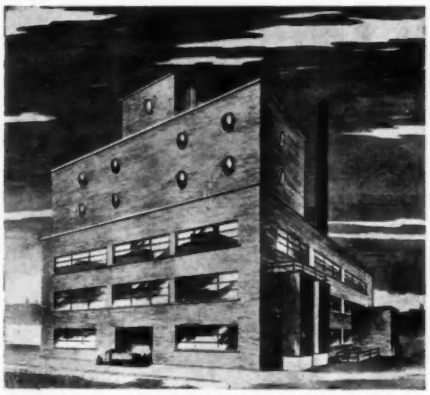

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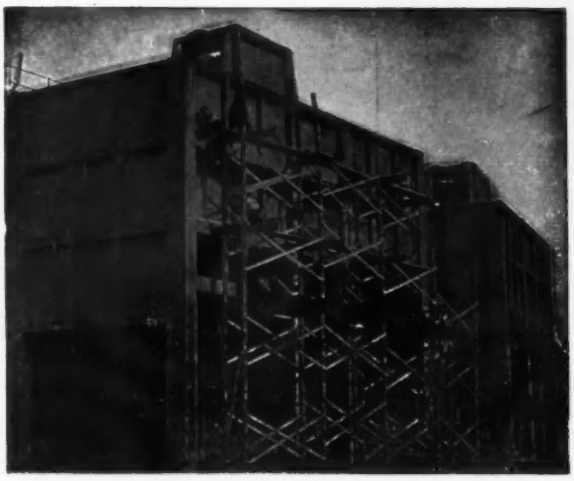

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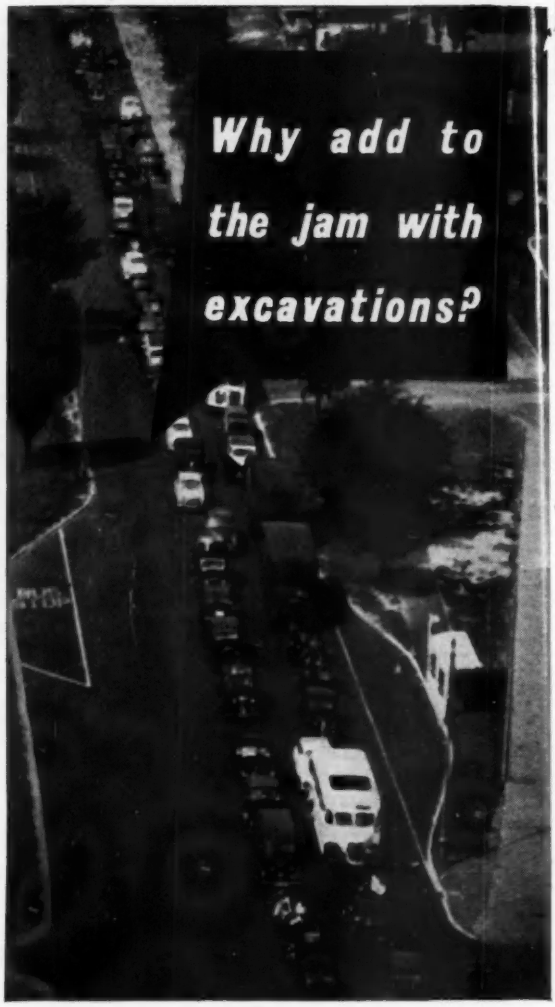

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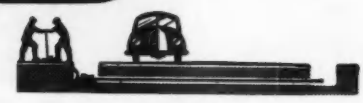

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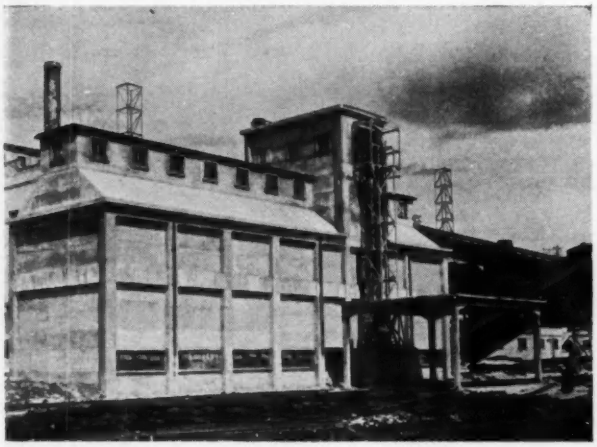

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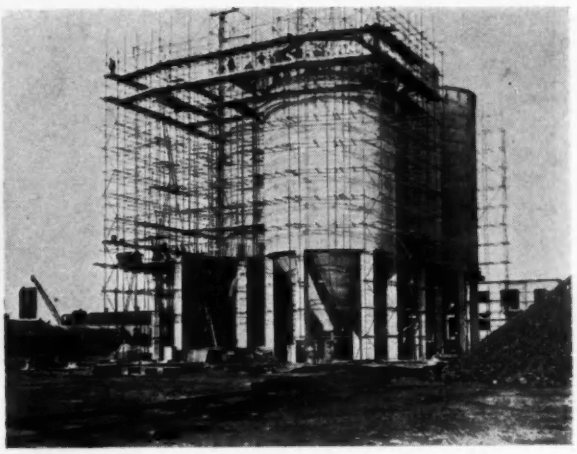

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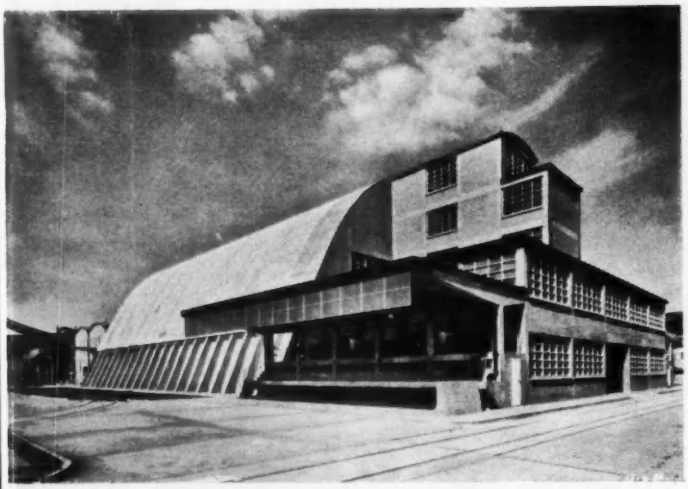

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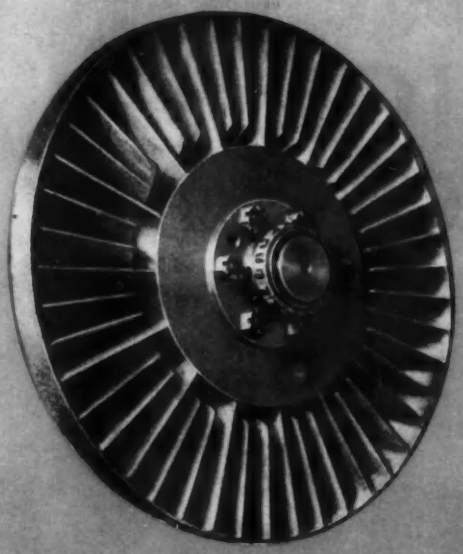

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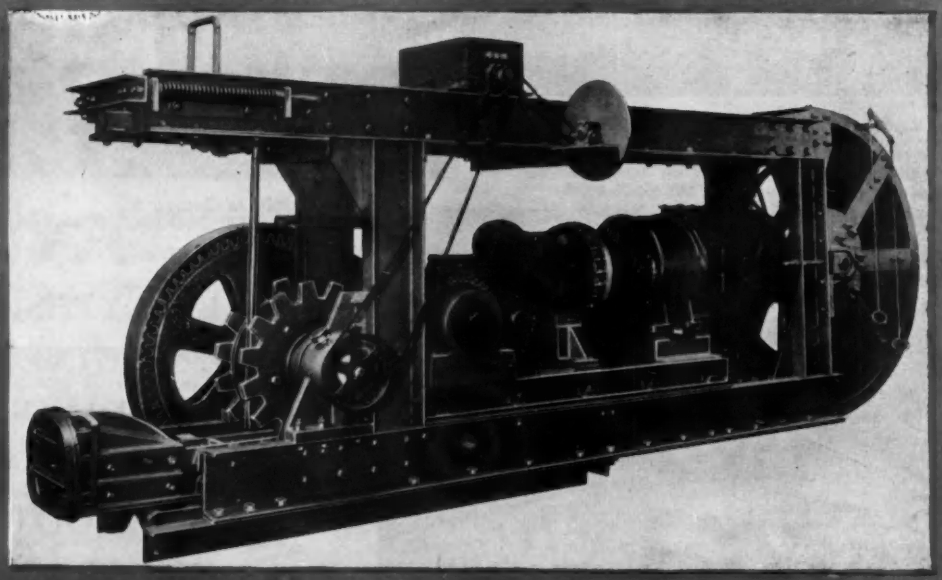

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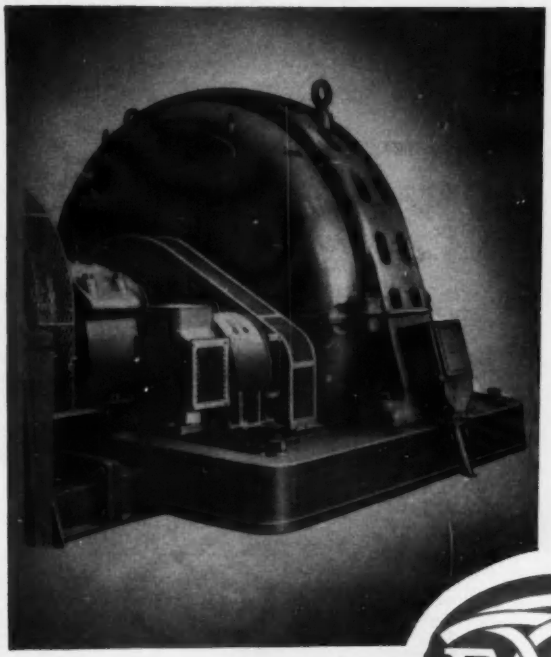

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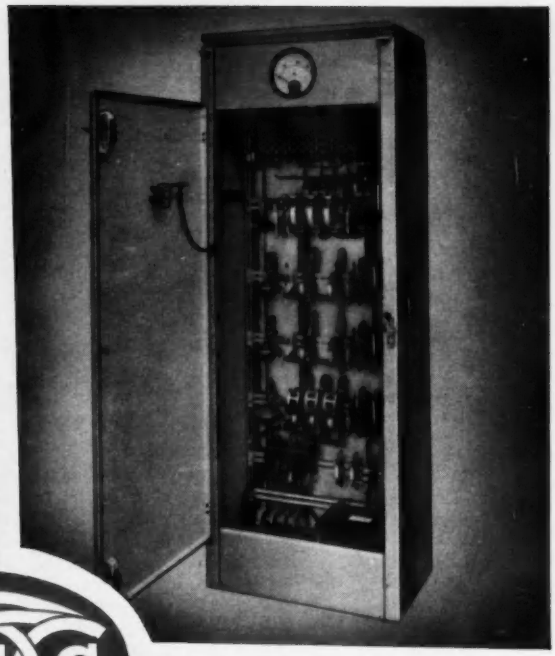

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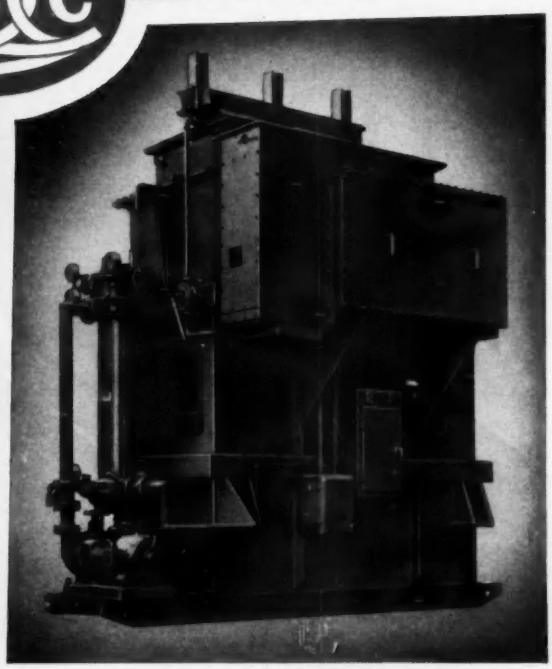

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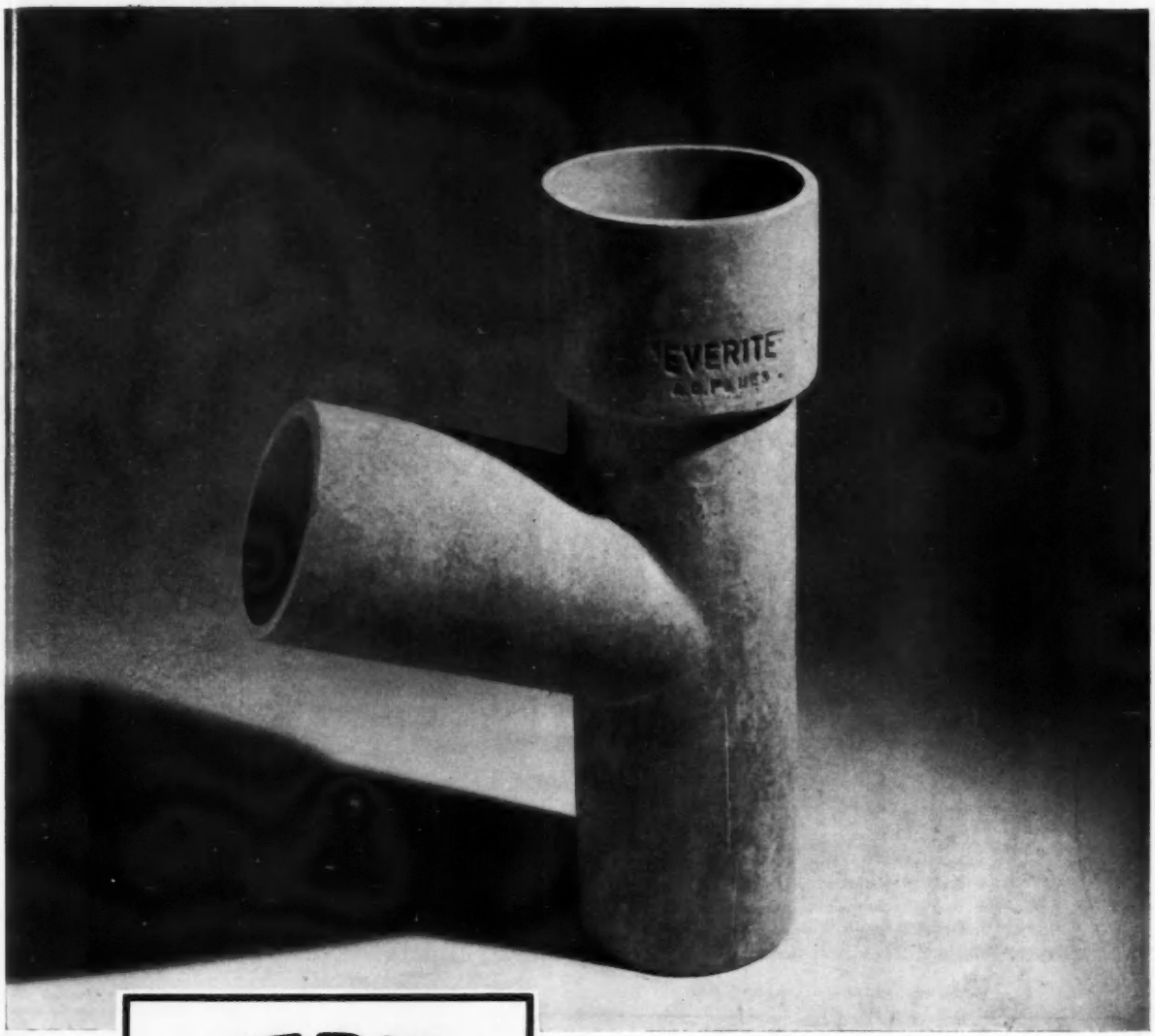

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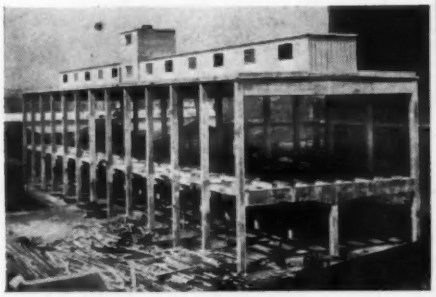

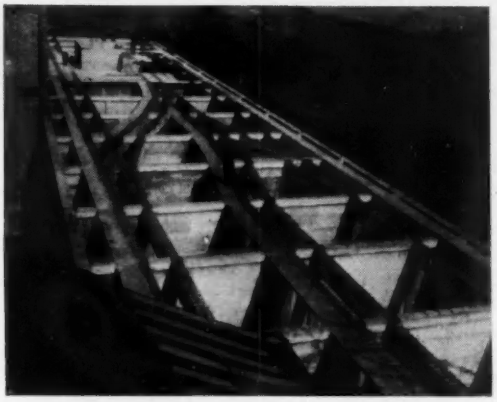

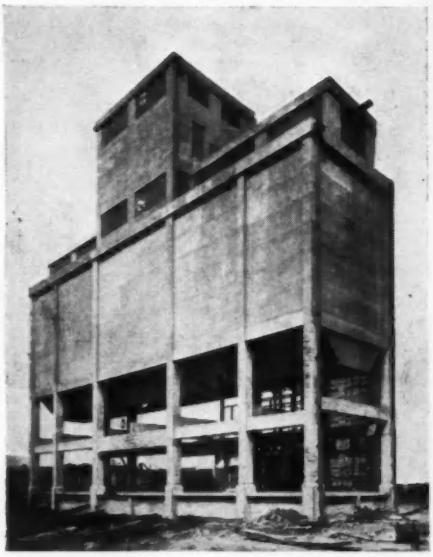

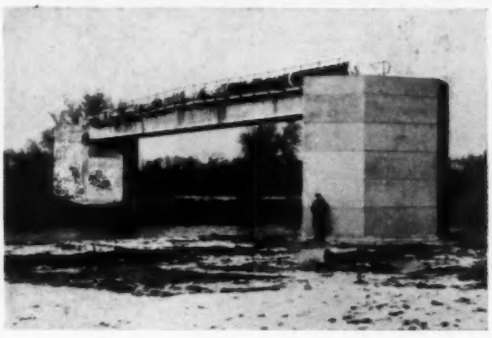

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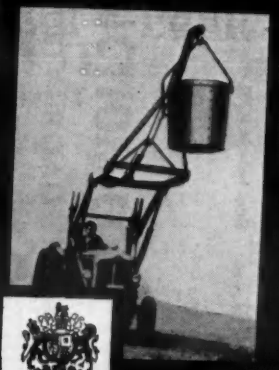

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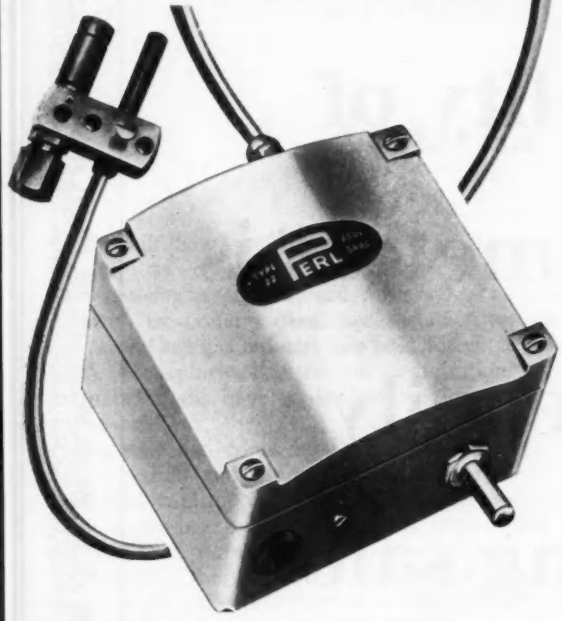

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Gas Journal

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108TH YEAR

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Gas Journal

VOLUME 288. No. 4876. DECEMBER 26, 1956. 108th YEAR

Time for Policy-making

IT would be absurd to think back over the past year with no consideration for any but its more depressing aspects—absurd, but easy. The whole of industry, the country itself, has sustained serious setbacks, and the gas industry has been fortunate in many ways, particularly because its organisation and co-ordinated plans have enabled it to show remarkable resilience.

The time had come anyway for a natural pause in both research and capital expenditure so that results since nationalisation might be assessed and valued; and even supposing unlimited financial outlay had been feasible, the uncertainty of oil supplies and the business of balancing the production from a two-fuel industry would have made precipitation unwise in the extreme. But all the indications are that the industry is bearing in mind the possibility of a normal period in the country's life—with no squeezes, no hire purchase restrictions beyond reason, a fair system of purchase tax, and a generally encouraging feeling that to go all out is not necessarily anti-social. When that time comes indecision would have disastrous results.

Elsewhere in this journal are reviews of the industry's activities over the past year. Their approach is not that of mere retrospect, but in each will be found some indication of the future. It is well known that our domestic sales of gas are dropping; this is our bread and butter load and it is very little comfort that in industry our sales are creeping up. What is the reason for the decline? Is it bad salesmanship or is it some outside influence? A heavy proportion of the blame must be laid at the door of our national fuel policy—or rather lack of one. It is accepted that competition is part of the policy that accompanies the nationalisation of the fuel industries. And nobody wants a four-headed bureaucratic dragon grown sluggish with easy living. But surely some co-ordination is needed. Is it sensible or fair, for example, that a promotional tariff should exist that weighs heavily against an industry which does, unquestionably, 'Make the best use of the nation's coal'? The fact is that the price of domestic electricity has actually fallen since before the war; the current B.E.A. report shows that in 1937-38 the price was 1.547d. against 1.533d. in 1955-56. The effect of these tactics is that the nationalised gas industry has had to publicise its wares with all the strength it can muster. Every gasman has to be a salesman too. It is fortunate for the nation's fuel resources that on the whole he has not fallen down on his job.

Apart from promotional tariffs, there is another instance where some drastic ministerial re-thinking is imperative. Why should there be discrimination on the side of solid fuel and oil heaters in the imposition of purchase tax? No reasoning can seem to justify this. When one thinks how essential it is that all appliances burning smokeless fuel should be sold freely in order to implement the new concept of healthy air one's patience is tried very hard.

Within the industry itself a virile, modern spirit of healthy enterprise grows steadily. The problems associated with integration and modernisation are many and bring out the best qualities to surmount them. In our review of the Institution of Gas Engineers can be seen an awareness of the need to train and to educate young men to the standard that is now required to deal with the increasing complications of the task ahead. There are however two points that need to be tackled decisively at top level. First, what can be done to retain manufacturers' skilled craftsmen as the number of gas-works in some areas dwindles with the growth of grid systems? Secondly, a very similar question, what policy can be adopted to stop the wastage of technicians and officers within the gas industry where re-organisation schemes come rapidly into force? Sentiment is far from being the important consideration in answering these questions. In fact a certain amount of misunderstanding has already brought about a feeling of uneasiness that can only do harm to the industry if it is allowed to develop. Solutions are possible and one looks forward to a clear lead being given in 1957.

New Plant, 1956

DURING the year a number of gasmaking plants have been commissioned either in entirety or else as a part of the original layout, which can be worked independently of what remains to be built. Where a new plant is being built on a virgin site, such piecemeal commissioning will be helpful in trying out new ideas in waste heat recovery and other innovations on a limited scale so that teething troubles may be allowed for before full production is needed. It will also enable the plant as a whole to be brought into production by easy stages. At those works where only retort houses and ancillary plants are being replaced by modern up-to date gasmaking plants, such a procedure is of course necessary to enable production to be maintained while room is made for the new plant and the dismantling of the old takes place. The new works referred to in the 'GAS JOURNAL' in 1956 are those which are planned either immediately before the industry was nationalised or those which the newly constituted area boards saw would be necessary if gas production was to keep pace with the increase in consumption they hoped to encourage.

It would therefore be true to say that all these new plants belong to the 'post-nationalisation' era after area boards had laid their plans for taking full advantage of their newly granted powers for controlling large areas of gas consumption and of supplying such areas from centrally placed gasmaking plants of optimum size, located at the most convenient places to receive raw materials and the most strategic to supply the future networks.

In all these works, it is most gratifying to see that the most strenuous efforts are being made to implement modern practice in waste heat recovery and electrical generation from locally raised steam from this heat, together with the most up-to-date means of mechanical handling, labour saving devices and ammenities for the personnel. So successful, in fact, have these efforts been that many of the gasworks now being commissioned are completely thermally integrated, and the handling of coal and coke is accomplished by integrated systems of belt conveyors, with the minimum number of men employed.

The methods of thermal integration differ only in detail among these modern works. Denton is outstanding for its generation of producer gas for underfiring the retort settings from dedusted coarse breeze in mechanical producers. The effect of this is to reduce the capacity of the producer by about half, but the extra cost involved was considered justified, as it would make available a considerably increased quantity of domestic coke, which could command a much better price than the breeze, with the additional advantage that the dust from the breeze could be disposed of to the Central Electricity Authority's generating stations. The coal and coke handling plants at this gasworks were outstanding, though to some more conservatively minded gas engineers, they might seem a little over elaborate. Denton, also, is well equipped for the treatment of effluent liquor. At the new Exeter works which will be one of the three in Southern Devon, the vertical retort plant will take over gas production for a wide area, and will make it possible to shut down a number of small gasworks in the locality as soon as the necessary interlinking mains are laid. By the end of the year this works should have an output of 6 mill. cu.ft. per day with provision for extension to 9 mill. at a later date. Here, for a comparatively small works (Denton has a total output of 15 mill. cu.ft. and Stapleton Road about the same) no efforts have been spared in successfully applying thermal integration.

All high pressure steam will ultimately be raised by waste heat which will be consumed by pass-out-condensing turbo alternators. The pass-out steam will as at Denton be used for process work and the heating of buildings. All drives without exception are planned to be electrical with a standby diesel compressor. The latest forms of ring main feeds have been installed and substations, located at points where the 3.3 kV. power may be transformed to 415 V. for local power uses, though the higher powered motors are connected to the 3.3 kV. supply in each case. At the Stapleton Road works, however, the exclusive use of electric drives has not been pushed to such a logical conclusion, and high pressure steam is used to drive the boiler feed pumps and the turbo-exhausters. Here also a diesel driven compressor has been installed as a standby.

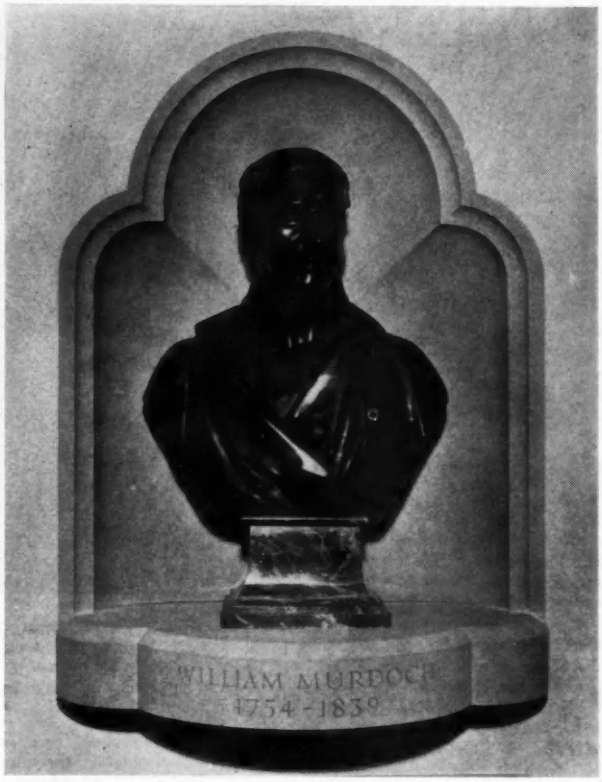
The extensions to the Granton works at Edinburgh were of interest in that they showed how the foresight of the first chief engineer, Mr. Herring, in his original planning could influence and facilitate the installation of modern plant on an old site with the minimum disturbance to the working of existing plant. Here there is ample space for the installation of up to date mechanical handling and carbonising plant without having to rely on site clearance first. The design of the buildings though perhaps old fashioned by to-day's standard of austere utility are quite outstanding among such buildings.

The most important plant to be commissioned in 1956 is the Avenue Coking Plant of the National Coal Board at Wiggerworth, near Chesterfield. Here the only raw material entering the works is coal. The two batteries of Woodall-Duckham Becker ovens will carbonise 2,175 tons of coal per day with a net disposable gas output of about 14 mill. cu.ft. per day. The plant is equipped with the most up to date means of by-product recovery and for the rectification of benzole products. All gas, even that used for underfiring the coke oven plant, is purified in tower purifiers of a capacity of 26 mill. cu.ft. per day. All spent oxide is burnt in special furnaces to recover the sulphur without making the desulphurised oxide useless for further sulphur absorption. The recovered sulphur is converted into sulphuric acid and used for the manufacture of sulphate of ammonia. Though the original ideas behind this vast plant may not be brand new, the execution and planning behind the carrying out of so large a conception are outstanding. At this works all power is generated by steam from breeze burning boilers. Though ample electrical power is generated, a balance is maintained between steam and electrical consumption by prime movers. This is in the power house superintendent's hands, and is rigidly kept at a predetermined figure. Altogether 1956 has certainly been above the average in the quality of the gas production plants it has seen commissioned.

How the Industry Fared In a Most Difficult Year

1956

- ★ THE 'CLEAN AIR' FRONT
- ★ FALL IN COKE SALES
- ★ INDUSTRIAL GAS
- ★ COAL SUPPLIES
- ★ S.B.G.I. MEMBERS 'WORRIED'
- ★ PUBLICITY UPS AND DOWNS
- ★ INDUSTRIAL RELATIONS



Pressing Need for Easier Appliance Sales

THE events on the clean Air Front during 1956 have comprised one spectacular advance, a number of heartening moves, and a great deal of activity behind the scenes. There are also some less satisfactory features.

The gas industry is losing ground on the domestic field. There may be many reasons for this, but among them is pre-eminently the effect of hire-purchase restrictions.

There is a wide consensus of opinion, from the Minister of Fuel and Power downwards, that the passing of the Clean Air Act, the really spectacular advance in air cleansing in our generation, makes new demands on the gas industry for service to the community and provides an outstanding opportunity for a very considerable increase in the sales of domestic coke and gas.

Unfortunately, the opportunity is bedevilled by the ban on hire-purchase. No one would question the necessity of

Clean Air

a tight control over inflationary spending, but at a time when large numbers of obsolete, fuel-wasting appliances will in all probability be replaced by new domestic heating equipment, the installation of satisfactory appliances will be prevented if the pressure against the sale of gas appliances continues.

There is no sign of it being eased, but a case could surely be made out for easement on grounds of fuel saving. The Domestic Heating Conference held by the Institute of Fuel earlier in the year indicated how pressing is the need for better domestic heating. The subsidy that will be paid towards the replacement of obsolete appliances is likely to do no more than encourage the installation of the cheaper—and less efficient—replacements, so that those who wish to install better solid fuel appliances and the more complete heating services using a combination of gas and coke, described by L. W. Andrew during the year, must pay for them out of their own pockets; and that involves hire-purchase for most people.

Fears for the future have been here put before the account of advances made during the year. This is not, as some might think, the cart before the horse. The past is completed; it is to the future that we must look. It is for the future that our plans must be made.

The basis of those plans must be the Clean Air Act. The provisions of this Act have been described in several publications during the year and only the briefest summary is necessary here.

Industry will be given another year in which to bring plant and operation up to the standard necessary for the proper observance of the Act. The Act forbids absolutely any emission of dark smoke other than for short periods, not yet defined but measurable in terms of five or ten minutes a shift, and under certain exceptional circumstances. This prohibition applies to domestic smoke also. Gasworks and coke ovens will not be wholly immune.

There is provision for bringing under the Alkali Inspectors 'difficult' processes which cannot at this stage be operated smokelessly. But although gas retorts and coke ovens will probably be put under the Alkali Inspector for the time being, thus given a temporary licence to continue polluting the atmosphere, other plant on the works, such as boilers, will come under the dark smoke prohibition on the 'appointed days' which is likely to be early in 1958.

It is a fair bet that the authorities will demand that static carbonising plants shall be designed for near-smokeless operation, with considerable pressure on gasworks towards the installation of smokeless forms of carbonising plant for new installations.

Carbonising plants have been known to discharge grit and dust into the atmosphere from the retort house and from

NOW 'MURDOCH HOUSE'

When Gas Industry House was re-named 'Murdoch House,' the Minister of Fuel and Power, Mr. Aubrey Jones, unveiled the bust of William Murdoch, pictured above.

coke screens. The Act requires that every installation with a maximum heating capacity of 55,000 B.Th.U. an hour or more burning solid fuel in any form or processing solid fuel by the application of heat must 'use any practicable means there may be for minimising the emission of grit and dust.' This does not, as might be thought, let out the coke screens. They will be caught under the existing 'nuisance' laws.

Another provision that affects carbonising plants is the height of the chimney. The electricity industry, disregarding the ancient principle that 'all that goes up, comes down,' is engaged on a combined operation designed to show that if the chimney is made high enough, what goes up will go up so high that it comes down far from the haunts of men.

Chimney 400 ft. High

This is not the place to argue the rights and wrongs of all this. What is definitive is that the Act gives powers to the local authorities to approve or reject plans for all new industrial chimneys, the criterion being whether the height will be sufficient to prevent whatever is discharged from the chimney being prejudicial to health, or a nuisance. If the C.E.A. persuade the local authorities that the right principle is 'the higher the better,' will the demand follow that gasworks and coke oven chimneys shall be 400 ft. high?

If the industrial provisions bring responsibilities, they will also bring opportunities. Many works teetering on the edge of using refined fuels for their heating or heat treatment processes, will be driven to gas in order to avoid the trouble and expense of converting their works to smokeless combustion on bituminous coal.

It is in the domestic provisions of the Act that the greatest opportunities may arise. Local authorities are given power to establish smoke control areas in which only authorised fuels may be burnt. The Minister of Housing and Local Government decides what fuel should be 'authorised' and he has assured Parliament that 'it is not the intention of the Government to authorise for this purpose any fuels that are not smokeless.' There is no hint here of allowing, say, a 70% reduction in smoke emission in a domestic appliance. There is an escape clause, it is true, which permits the Minister to allow fuels outside the authorised range to be burnt in specified appliances within a smoke control area, should an appliance be put on the market capable of passing the stringent tests that would undoubtedly be applied.

Replacement in smoke control areas of appliances that will not burn coke will be a big task. It is the key point on which all sales efforts should be directed. If modern gas appliances are not installed in considerable numbers in each smoke control area as it is instituted, the opportunity will have been missed. The Act enables owners or tenants of existing dwellings to have seven-tenths of their expenditure repaid. This cost is shared between householder, local authority and the Treasury in the proportion 3:3:4, but a generous local authority could bear some or all of the householders' three-tenths in addition. The whole of whatever expenditure is incurred will not rank for subsidy, but only that which is incurred with the approval of the local authority and on work carried out to their satisfaction.

Men from the Ministry take a look at 'Cleanglow,' the new North Thames fuel, when it was introduced this year. Left to right: Mr. Owen Francis, Under-Secretary, Gas Division, Mr. R. J. Ayres and Mr. M. T. Flett, Deputy Secretaries.

If sufficient smokeless fuel were available of a 'burnability' similar to low temperature coke, there would be in theory no need to replace any solid fuel appliances. That is a solution that would appeal to those whose objective is minimum capital cost, but it would be disastrous if obsolete appliances were perpetuated. The gas industry must have no truck with ideas of that sort. The national fuel position no less than our deplorably savage methods of heating our caves demands that the efficiency of fuel utilisation in British homes must be raised very considerablv.

This brief survey of some of the features of the Act that affect the gas industry will have served to indicate the problems that lie ahead and to illumine the steps that are being taken. Nearly half the period of grace given to industry to put its plant in order has gone. It is disturbing to find no substantial guidance is being given to industrialists by trade associations and other organisations. Many local authorities are training staff. There will be a shortage of men who can help industry to help itself. In the next few years that may be an outlet for the activities of those of riper age trained in fuel technology—or gas engineering! N.I.F.E.S. cannnot handle anything like the volume of urgent demands for help that may arise. Hand-firing of boilers and furnaces is giving place to mechanical stoking.

The Ministry of Housing and Local Government has been hard at work deciding matters of administrative policy. One casualty is the Clean Air Council.

If current report on the general form of its composition and functions is to be believed, it can be written off before its members are nominated. It is rumoured that it will bear no resemblance to the virile body that the Beaver committee had in mind.

Many local authorities, as in the West Midlands, are now taking steps to bring the implications of the Act prominently before their citizens. Discussions have been taking place between local authorities and the fuel industries about supplies—not always satisfactorily. It is much to be deplored that the Suez affair and the financial stringency should have coincided with the period when plans are being made to implement this Act. The gas industry set up its coke supply committee but, while the recommendations of that committee have shown how a little more coke can be liberated, by comparison with the problem of displacing something between 19 mill. and 36 mill. tons of house coal annually, one is reminded of the mighty labour of the mountains that give birth to the *ridiculus mus.*

Whither Gas?

By direction or design, the gas industry will not face the erection of new carbonising plant that alone can produce the required smokeless fuel. ('. . . . only by additional carbonisation can really substantial additional quantities of coke be placed on the market'. . . . Sir Henry Jones.) A disposition has been noted to believe that the salvation of the smokeless fuel situation lies in gas. With the enormous increase in seasonal production? With capital costs at present levels?

During the year the North Thames

Gas Board has begun to produce 'Cleanglow' from low-rank coals, and the North Western Gas Board, by quite other techniques, is ready to market 'Thermax' briquettes and 'Thermalite.' These are first-class fuels and reflect great credit on the engineers who devised them and the Boards who sponsored them. Future developments will be watched with the greatest interest.

Coke Testing

The British Standards Institution has been active. The Beaver committee made certain suggestions that the Institution has taken up. One suggestion was that the B.S.I. 'should prepare specifications and methods of testing for coke for household use and for domestic solid fuel appliances.' A committee is at work on the preparation of specifications for coke, which obviously must include methods of testing. This task seems a little like one of the labours of Sisyphus; painfully the coke is rolled up the mountain—then down it comes again!

Work on domestic appliances has been in progress for some years, and is now beginning to show results through the conception of dimensional standards. How to prevent the public from buying sub-standard appliances is a problem of no small magnitude. Considerable progress has been made with drawing up standard specifications for smoke indicators, recorders and alarms and with devising simpler methods of determining grit and dust emission. A start has been made with drawing up codes of practice to indicate the extent to which smoke can be reduced on coal-fired boilers with good practice, and the means for securing such reductions.

N.C.B. chiefs inspected briquettes at Bollington this year. L. *to* R. *Mr. Redman, Dr. Idris Jones, Dr. Bronowski, Mr. Wynn, Mr. Welman.*

The Domestic Heating Conference of the Institute of Fuel in May, that filled Church House, Westminster, to overflowing, showed the great interest that now exists in domestic heating problems and provided a fairly complete picture of the present state of the art. The publication at the end of the year of the final volume of the transactions has provided a text-book on the subject that will be regarded as the standard work.

The passing of the Act and the parliamentary stages that led up to it caused the subject of clean air to be headline news through the first half of the year. During the second half of the year the subject sems to have been forced underground. To suppose that interest is waning, however, is illusory; like the iceberg, seven-eighths of it is below the surface. During 1957 it should become possible to gauge the extent to which local authorities are prepared to make a start with smoke control areas. In 1958, the whole Act should be in force.

Home Stocks Have Been Allowed to Dwindle

SALES of coke in the summer of 1956—an unusually chilly one—fell by between four and five hundred thousand tons compared with the previous corresponding season.

Was this due to the penally heavy increases in coke prices that have occurred over the last 12-15 months as a result of higher coal costs?

'Feeling of Security'

In the experience of the management and marketing side of the industry that argument is not likely to be the true one. More probable is the suggestion that freedom from a period of weather sufficiently bad to cause crisis conditions during the past 18 months has lulled the public into a feeling of security.

In short the 'as and when' character of the pre-war market is now prevalent.

The result is that stocks in consumers' cellars and stores are lower than they have been for a long time. This fact can be proved by noting what has been happening in some larger regions of the country. The moment that a spell of low temperature has hit the country, offices and showrooms have received up to double or even three times the normal intake of orders for the time of year.

The stock situation is reported to be very satisfactory as the result of a deliberate move on the part of the gas industry to prepare for implementation of the Clean Air Bill. The Government has encouraged the manufacture of more coke for this purpose and so far these particular stocks have not been drawn on.

Further, as a result of the oil crisis, the Government's policy of pressing the maximum carbonisation of coal at gasworks to produce more coke will have a considerable boost.

Greater tonnages of coke have been exported over the past year than during the previous two years. Unless there is a radical change of policy this trend is likely to continue. The Gas Council annual report states that demand for coke

Coke

in European markets has been 'maintained at an exceptionally high level,' over the year ended March 31, 1956, and that 'prices have risen considerably. In view of the need, however, for meeting home requirements for smokeless fuels and the overall fuel shortage, with the consequent import of substantial tonnages of coal, exports of gas coke were restricted by the Government to 600,000.'

The Ministry of Housing and Local Government has perfected a plan of action covering procedure to be followed by local authorities where smoke control is to be brought into effect. The gas industry has been asked to submit evidence to the Dobson Committee on the costs of distribution of coal and coke.

The Gas Council Coke Department Technical and Appliances Committees have all been active over the past year in the development of efficient appliances. And in central heating and commercial fields a great deal of progress is being made. There are now three boiler furnaces, for instance, which allow the use of coke for water heating with efficiencies of 75-80%. In 1939 the best boiler the industry had was the 'Gravico' with an operating efficiency of about 20%.

Work is also going ahead on the approval of domestic appliances scheme operated by the Gas Council. This was inherited from the old London and Counties Coke Association, and is designed to approve appliances specially made for coke burning only.

The annual report showed that during the year up to March 31, 32 new appliances were approved for inclusion in the Gas Council Approved Coke Burning Appliances Handbook.

What Difference Will the Oil Crisis Make in the Long Run?

PROVIDED industrialists changing from oil to gas are prepared to accept supply cuts in severe weather, the gas industry appears to be confident that it can take the additional load that might be imposed by the oil crisis, in spite of the fact that oil gas plant will also suffer in the shortage.

At the end of November the West Midlands Gas Board alone had several hundred enquiries into the cost of converting to gas. Some manufacturers required merely an additional burner; in other cases, more elaborate modifications were necessary. What really matters, however, is the percentage who will remain consumers when oil supplies are normal.

Since the principal factor where losses were experienced was the lower price of oil, another big question is: Will oil prices ever subside back to pre-Suez level?

Before the crisis there were small losses to oil—chiefly to the baking trade—but as the annual reports and accounts showed, in other fields there were much larger gains. Total industrial sales up to March 31 had risen by approximately 4% to just over 750 mill. therms, which represented 28.4% of the total gas sales for the year.

An interesting feature of the work of the Gas Council's Industrial Gas Development Committee has been the setting-up of panels on different aspects of the application of gas to industry. This idea was inspired by the success of the Flame Protection Practice Panel which got out the important report published in October.

New panels are to look into: (1) The relative suitability of direct and indirect firing for drying processes; (2) waste heat recovery; and (3) prepared atmospheres for industrial furnaces.

Technical development in the design of equipment has continued. Particular attention has been given to developments in the use of bright annealing, and the growing recognition of the importance of automatic control equipment in new appliances.

Another technical development was mentioned in the annual report. This was a direct-fired forge furnace incorporating a new system of atmosphere control and regeneration, by which steel billets can be heated to 1,200°C. without any scale being formed. It is expected to prove particularly valuable to sections of the metal industry using expensive alloys where undue loss of metal through scaling must be avoided.

In June, a meeting of the Industrial Gas Development Committee and the No. 9 (Industrial Gas Equipment) Section of the Society of British Gas Industries was held to consider development programmes of mutual interest, and to consolidate further co-operation between the two organisations.

The Industrial Gas Committee has continued the issue of technical reports, and among the non-confidential reports, in addition to the one on flame protection practice, are those on the following subjects: Explosion reliefs for industrial drying ovens; a high velocity high temperature air heater; furnace installation for the continuous hardening and tempering of steel strip; conversion of a fruit kiln; burner equipment for banana ripening rooms; conversion of a coke-fired core drying oven to gas firing; pale drying of bacon; the fish frying trade and the threat of oil competition; an incandescent cup burner; the control of flame characteristics; and the protection of seed potatoes from frost.

Industrial

Industrial gas was featured at two exhibitions. The first, the Factory Equipment Exhibition in May, was particularly successful. Also a success was the stand at the Fuel Efficiency Exhibition, where the Gas Council appeared for the first time. Full co-operation was had from manufacturers in both instances.

N.C.B.'s 'Price Plateau' Still Holds Firm at Pithead

RECENT events have rather obscured the fact that earlier this year there was serious agitation for the stabilisation of prices. As a result the Coal Board, the transport, gas and electricity industries were asked by the Government to create 'price plateaux'—to raise their prices where necessary to an economic level—and then hold firm.

Private sectors of industry, it was reasoned, might then be encouraged to hold their prices down; similarly, the trade unions might ease up on wage demands.

On June 1, 1956, the National Coal Board called a general increase of 8% on coal prices (to the gas industry this meant another 5s. 11d. a ton or £8.3 mill. a year). Then they said that, subject to no unforeseen development taking place, they would not increase the price again for 12 months.

After this move the gas and electricity industries established their 'plateaux' and made their cautious promises. But for Suez who knows whether it would have worked? One factor, of course, was the uncompromising attitude of the unions as expressed at their Congress.

Here we might have a look at the annual financial losses incurred by the N.C.B.

A loss of £19.6 mill. in the year 1955 increased the accumulated deficit of the Board to £36.6 mill. Thus, it was obvious that the remedy could only be either a substantially higher coal output or a raised coal price. Hence the general increase in price we have already mentioned.

Coal

At the same time, however, a small adjustment of detail was made to the coal price structure whereby untreated industrial smalls, such as are largely used by power stations, were increased in price, certain types of carbonisation coal were reduced in price and there was a small general reduction in the price of carbonisation coal.

These several adjustments to the coal price structure had the effect of reducing the average price of gas coal by a few pence and of increasing the price of coal to power stations correspondingly.

The production of deep-mined coal in the present year has been most disappointing. Output in 49 weeks was slightly less than last year despite the fact that the Yorkshire coalfield strike accounted for a loss of about 1 mill. tons in 1955. The reason for the drop appears to be obvious: Output per man-shift is slightly higher this year than last, but absenteeism is substantially higher; so are the average earnings of the miners.

Transport

There was an increase of 5% in railway freights in April, 1956, which added a further £1 mill. a year to the cost of transport.

Under Section 20 of the Transport Act, 1953, the British Transport Commission is obliged to introduce Charges Schemes which will enable them to charge rates and dues according to the nature of the traffic, as negotiated by commercial standards up to a permitted maximum. The object of these Charges Schemes is to do away with published schedules and to offer rates more in keeping with the nature of individual traffic.

An interesting remark made in the Gas Council annual report shows that, whether the pithead price of coal is maintained

The m.v. Kingston, launched in October, is the latest addition to the South Eastern Gas Board's fleet of colliers.

or not, now that we have a petrol shortage the overheads are bound to jump:

'In recent years the proportion of coal delivered by road has steadily increased, mainly where road transport is found to be cheaper than rail, but also because it is more quickly adaptable to changes in local requirements. In 1955-56 approximately 1 mill. tons more coal were carried by road than in the previous year.'

During the year the Coal Board introduced a change in its selling organisation. Previously each coal supply division or coalfield had its own marketing department which was responsible for arranging supplies from the coalfield to its customers wherever they might be. Under the new organisation regional selling offices have been set up in the principal consuming areas. It is their function to act as intermediaries between consumers and coalfields and they are expected to co-ordinate deliveries from the several coalfields supplying their area, according to consumers' demands.

The Ministry of Fuel and Power, in conjunction with the National Coal Board, have continued to make coal available according to supplies programmes. There has been some relaxation in the form of programme which has made it easier for area boards to distribute supplies to gasworks.

Not only has this made it possible to arrange coal stocks more in accordance with local requirements, but it has resulted in some improvement in the allocation of coal according to type. Were it not for the general overall shortage of coal there is reason to think that there would have been some improvement in most aspects of supplies.

Latterly, the gas industry has had reason to feel concern about its gas oil supplies for the forthcoming winter period. The industry uses about 500,000 tons of gas oil a year of which 300/350,000 tons are used in the winter. Every endeavour is being made to minimise the consumption of oil by an increased carbonisation of coal and a limitation of benzole production.

It may be necessary for the N.C.B. to supply almost half a mill. tons of additional coal during the present winter and if this can be made available in suitable qualities the gas industry may be able to economise to the extent of some 80,000 tons of gas oil, which would be a valuable contribution to the nation during its present difficulties.

Stocks

Boards' stocks at the start of the financial year 1955-56 totalled 1,783,000 tons, or '2.8 weeks' requirements,' which was less than what had been planned.

At the start of summer, 1955, stocks of coke at gasworks were comparatively low and the gas coal programme for the six summer months provided for a rather higher level of carbonisation than usual to ensure adequate stocks of coke by winter.

Imports

It was intended that the boards should carbonise nearly 13 mill. tons of coal during the summer and have a stock of 3,750,000 tons of coal by the end of October, 1955. The annual report said: 'These quantities demanded the highest weekly rate of coal deliveries ever experienced by the gas industry, after taking into account seasonal restrictions due to colliery holidays. To sustain this high rate of delivery provision was made to receive 50,000 tons of imported coal from America and Europe.'

In fact, after the advent of Yorkshire coalfield strikes and a railway strike which necessitated the re-arrangement of programmes, area boards had at the end of the summer a total stock of 3,394,000 tons of coal (5.4 winter weeks).

Average Yield

Coal used for gasmaking in 1955-56 amounted to 27,841,000 tons, compared with 27,430,000 tons in 1954-55. The average yield per ton of coal used for making coal gas was 75.2 therms, compared with 74.8 therms in the previous year.

Total quantity delivered to boards was 28,334,000 tons compared with 27,210,000 tons in 1954-55.

As far as quality is concerned, the N.C.B. are installing additional washery capacity at their collieries, and washing permits the use of some coals which would not otherwise be acceptable because of excessive ash. The Gas Council report says: 'Unfortunately, the effect of washing is largely to substitute water for ash and a satisfactory method has yet to be devised for the removal of much of the water, the presence of which has three disadvantages; a correct weight ascertainment is difficult; the handling of wet coal during freezing weather is sometimes almost impossible; and wet coal adds to the cost of carbonisation.'

Slump in the Sale of Appliances Exceeded 50%

MEMBERS of the Society of British Gas Industries have had a tough year through the Government's policy of achieving a steady price level by means of drastically reducing purchases of household goods.

S.B.G.I.

And although the balance of payments situation is improved and exports have been maintained, S.B.G.I. members are worried that unless increased wages and costs are accompanied by corresponding increases in production, the country's position in these respects is likely to deteriorate.

Why has there been a reduction in Britain's percentage share of the ever-expanding world trade? Primarily, it is felt, because of the ability of competing countries to keep down their costs by comparison.

What of the effect of hire-purchase restrictions, imposed and intensified in 1955 at a time when peak sales of gas appliances were being reached? These and a further restriction, not to mention an increase in purchase tax and the control of simple hire, caused falls in sales of up to more than 50%.

A slump of 50% in sales can, it must be realised, result in times of restricted credit to falls of the order of 75% in production in makers' works. And what makes the situation even more disappointing to appliance makers is the fact that the Committee on Air Pollution have recommended the abolition of purchase tax on gas water and space heaters.

Members of the Society who make gasworks plant have also been suffering from a falling off in orders. Capacity on which the gas industry has had first call is not being used and there is a very

real problem as to whether—and if so, when—this capacity is likely to be required again. If the answer is 'never' then, members are beginning to feel, every effort has to be made to find use for it elsewhere on as long-term a basis as can be arranged, in which case the gas industry could no longer rely on having it available—or readily on call—again.

Short-sighted

In these circumstances it would certainly seem very short-sighted policy for Boards to do repair work which contractors are staffed to undertake and which, with their work falling off, it is essential to have if highly skilled staffs are to be retained.

This point of view, general among members, certainly seems to have justification when one considers the problem of recruitment. While the boards are striving so hard to find ways and means of attracting first-class personnel, it is a tragedy to the industry as a whole when qualified people are allowed to drift away because work is falling off.

This year there were issued General Conditions of Contract, approved and recommended for adoption by the Gas Council and the S.B.G.I. They supersede IGE/SBGI contract conditions which have been widely used throughout the industry for over 40 years.

Standard specifications for refractory materials for the gas and coking industries compiled by a joint committee representing the Gas Council, the S.B.G.I. and the British Coking Industry Association were issued last year. They have been well accepted everywhere.

And the joint committee has approved the recommendation that practical trials should be put in hand quickly—everyone seeming anxious to co-operate. Of course, the S.B.G.I. is able to bring to the work of the joint committee representatives both of brick makers and plant contractors.

The S.B.G.I. and the Gas Council also have joint consultative committees covering some of the major fields of common interest. Industrial gas equipment manufacturers are collaborating closely with the nationalised industry, and here a joint consultative committee has high hopes of helping the development of this load. As one might imagine, there are plenty of problems to deal with.

What were the most important features from the point of view of member firms manufacturing appliances? First, the moves to establish that the same appliance shall be sold for the same price throughout all the areas. What a difference that will make to publicity and sales efforts!

Secondly, during the past year there has been a noticeable increase in the amount and range of co-operation between Watson House and the Society. The conditions attaching to the submission of appliances to Watson House for test and to the inclusion of appliances in the Gas Council list of tested and approved domestic gas appliances have earlier been endorsed and approved by the Society. But, most important, there is machinery periodically to review this work and to enable S.B.G.I. members' views to be discussed. Furthermore, various panels comprising members of the two bodies, sit to cover a wide range of subjects.

Co-operation was the key-word at exhibitions this year. Appliance manufacturers and the Gas Council staged a very good display at the Ideal Home Exhibition last spring, and at the British Food Fair at Olympia appliances were loaned and there was some financial support.

Three candidates from S.B.G.I. member firms attended each of the four courses in Management organised by the Gas Council at the Brooklands County Technical College in 1956. These courses include candidates with engineering, accountancy, secretarial and other qualifications. The Society's Council is particularly gratified that candidates from the S.B.G.I. should join area board candidates on these courses. They afford opportunities to the candidates to work together and to get to know each other's points of view, quite apart from the great benefit derived from the training.

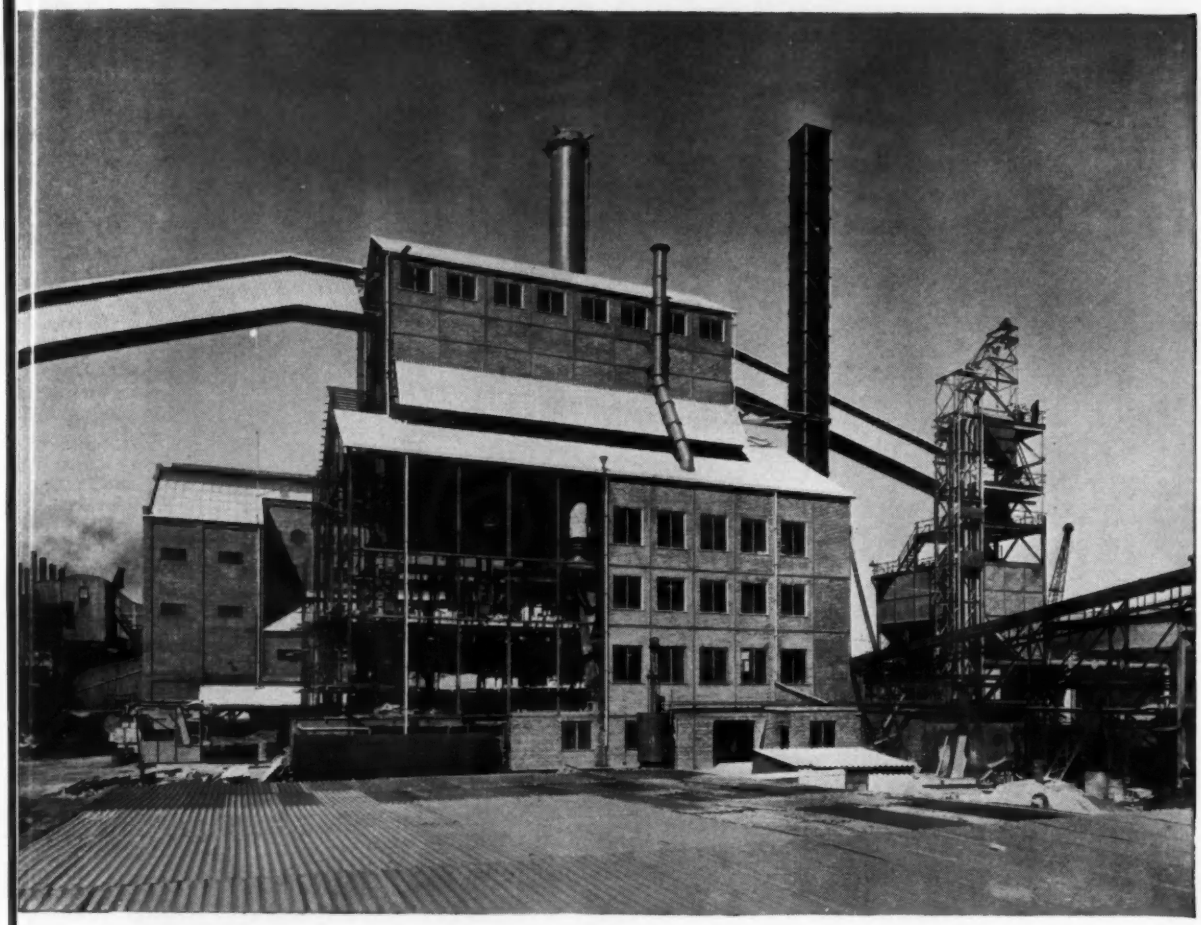
The opportunities which export markets afford are constantly explored by the Society's members. Important contracts for plant have been obtained during the year in the face of keen international competition. But competition does tend to become keener in the international field. Exports of appliances and meters reached a post-war peak in 1955, and in face of increasing competition are being almost maintained in 1956, despite restrictions in some of the most important export outlets.

Enthusiastic

The Society's members are enthusiastic for the implementation of the Clean Air Act. The modern appliances they produce and the plants which they build are essential to its success. And they feel that the climate of public opinion favours the policy. The coal from which gas and coke are produced is authoritatively stated to be available. The Society therefore supports all those who are engaged in the task of seeking to educate local authorities to the point of energetic action.

Members felt it to be a signal honour that Sir Hugh Beaver should have served during the past year as the Society's President.

The Gas Council—S.B.G.I. Joint Consultative Committee held their last meeting of 1956 at Murdoch House on December 10. With Mr. R. J. Gregg, Gas Council Publicity Manager, in the back row are (left to right): Mr. M. W. Burt, Mr. N. L. Smith, Mr. S. A. King, Mr. J. W. Rodgers, Mr. L. W. Andrew, Mr. D. Wright, Mr. N. Hudson and Mr. V. W. Stanton. Front row: Miss E. Mann, Mrs. Eileen Murphy (Secretary of the Committee), Mr. F. P. S. Stammers and Mr. S. G. Aberdein (Joint Chairmen) and Mr. P. D. M. Aird.

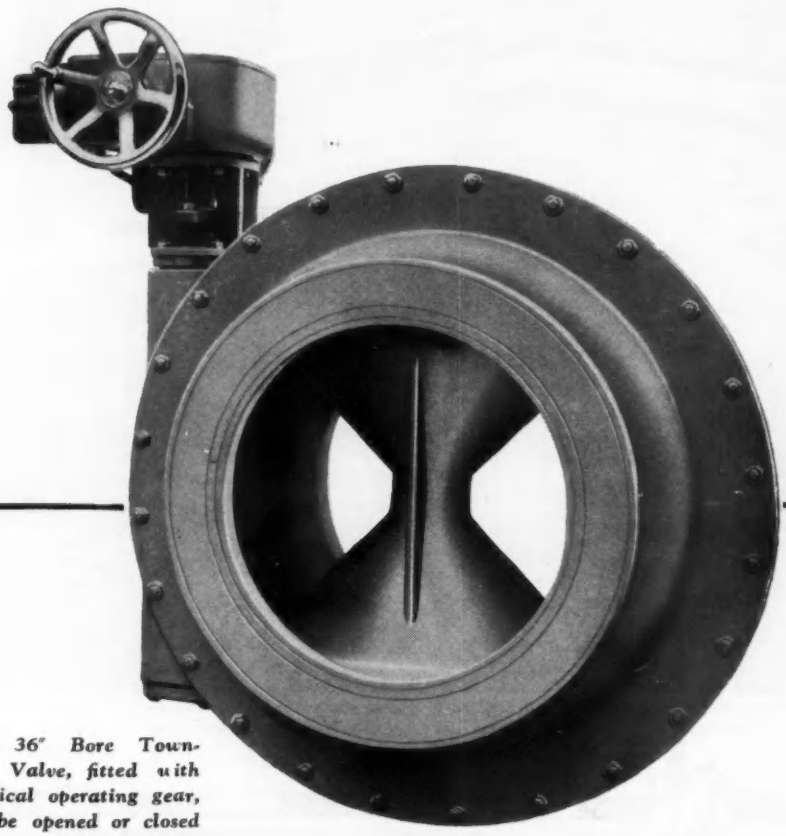


The W-D Intermittent Vertical Chamber Installation now being built by Woodall-Duckham (Australasia) Pty. Ltd. for the South Australian Gas Company at their Osborne, Adelaide Works. 20-3¾ ton chambers with a gas-making capacity of over 2½ million cu. ft. of 500 B.Th.U. gas per day.

WOODALL-DUCKHAM CONSTRUCTION COMPANY LTD

Woodall-Duckham House, 63-77, Brompton Road, London, S.W.3 'Phone: KENsington 6355 (14 lines) 'Grams: Retortical (Southkens) London

Cort's Motorised Valves



This 36" Bore Towndrow Valve, fitted with electrical operating gear, can be opened or closed within 30 seconds, stopped in any position and sequence interlocked to other equipment.

CORTS *produce power operated valves from 1½ inch to 36 inch bore, suitable for a wide variety of duties and conditions. The Towndrow valve illustrated has been specially designed to handle dirt laden gases. Double gate parallel slide valves are also produced in the same sizes.*

ROBERT CORT & Son Ltd

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Telephone: Reading 55046 (5 lines) Telegrams: "Corts, Reading"

National Daily Ads Fade Out With Reminder To Use Fuel Economically

'Whom the approaching day saw in his Pride, the parting day saw cast down'

ONE is seldom moved to translate Latin tags in the advertising world, On the contrary, as this article will prove, baby-talk is far more likely to appeal to the cash customers.

But something profound is certainly needed to express feelings created by the concertina-like squeeze and relaxations the industry's publicity has experienced over the past year.

Ever since 1950, in fact, a series of restrictions, impositions, Orders and counter-Orders have been plaguing the Gas Council and area boards' publicity departments.

What makes it all very depressing to the gas salesman is that, apart from Purchase Tax increases, the electricity industry has hardly been affected. On the contrary, it seems that electric appliance *manufacturers* will continue with their present high pressure advertising. *Advertisers' Weekly* points out that electric cookers will be extensively advertised in colour next year in all national media.

After two years absence Mr. Therm made a national newspaper advertising comeback which boosted employees' morale and made considerable consumer impact. Then, because of the present fuel crisis owners were told, 'We shall have to leave you at the end of the year.' And the fade-out was along the lines of a gentle reminder to use the fuel with economy.

Unspent Appropriation

It was in 1955 that the gas industry last cut its advertising because of the fiscal squeeze. This was of the Gas Council's own volition; only recently they increased the advertising appropriation back to its normal total. Now, because of the need for economy since Suez and all that, that appropriation cannot be spent.

Naturally, 'compromise advertising which the so-called 'Creative Committee' of the Gas Council's advertising agents has to organise at times like these, is far more difficult to organise than the full-steam-ahead variety. But it is safe to assume that gas will be right back in the national Press as soon as the situation is clear enough.

In the meantime, everyone will be pleased to know, Mr. Therm will be playing a strong hand in the magazine Press, and trade and technical press advertising is not affected.

Mr. Therm's 'babies'—the tots who have had so much to say for themselves in the industry's advertisements over nearly two years—are to go. This was a brilliant idea that attracted so much comment—pleasant and nasty—that its

Publicity

success is now unquestionable. The Gas Council Publicity Department have had an amazing number of requests for prints of these babies . . including one from the wife of the Governor of Nigeria.

In the place of these advertisements, the Council is reverting to the time-honoured slogan, 'Mr. Therm burns to serve,' used in conjunction with new and effective layouts.

Trade and Technical Press

Murdoch House's Publicity Department has been striving lately, it will have been noticed, to get away from what they admit to have been somewhat indigestible layouts showing nothing but expanses of

Ceramics
Josiah Wedgwood 'threw' this, the famous Portland Vase, towards the end of the 18th century—but now the 'thrower' is legendary. Once, kilns fired by raw coal spread filth and disease over a blackened countryside—but modern smokeless fuels like gas have altered the picture. The constant calorific value of town gas means automatically controlled faster firing schedules and increased productivity.
WHATEVER YOUR BUSINESS—The Gas Industry appreciates the needs of individual consumers for prompt service and for advice which accords with the customer's special circumstances and requirements. Each Area Gas Board offers efficient service to users of gas-fired equipment and can give expert advice based upon the pooled knowledge of all the Boards and of gas users in other countries.
—CONSULT YOUR AREA GAS BOARD
ISSUED BY THE GAS COUNCIL
THE GAS INDUSTRY MAKES THE BEST USE OF THE NATION'S COAL

One of the new industrial gas advertisements produced by the Gas Council Publicity Department.

engineering plant. Industrial advertising has now been cheered up; it is smarter in appeal and as modern as the minute.

Another development in this field is the decision to be more selective in positioning: instead of having layouts contained in the front and back portions, front covers or other favourable positions are being reserved where possible.

Provincials

The Gas Council, after discussions, feels that area boards can best deal with the provincial newspapers themselves instead of using the Pubilicity Department's staff. Because there is an increasing tendency to publish prices of appliances, the advantages of decentralisation are obvious.

Exhibitions

It may not be generally known that the Council's exhibitions staff design *all* Gas Council stands at the many national shows and exhibitions held throughout the year. Anyone who visited the British Food Fair this year will realise just how much ingenuity goes into these displays. And these designs are seldom used twice!

The staff of the permanent Gas Section at the Building Centre continues to answer with directory-like precision a fabulous number of inquiries and conduct innumerable parties of architects, domestic science and other students around the display.

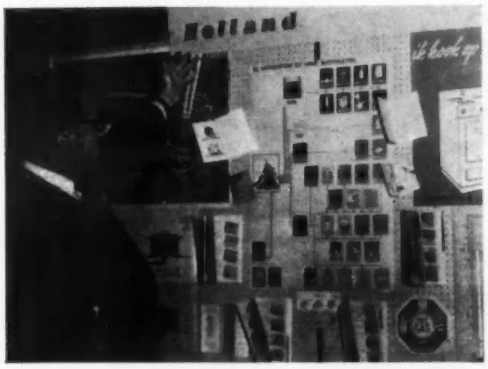
The Happy Home travelling exhibition—Daily Mail sponsored in collaboration with the Gas Council publication—sold £20,000 of appliances. A total of 131,000 people attended the show.

Another feature of the year was the tendency for the Royal Shows to be held nearer big cities, although they have an agricultural association. These shows are a big opportunity to put the goods right in front of people who are very much concerned about improving their standard of living—both in the town and in the country. Actual sales results on paper, therefore, should not influence one's judgment unduly, although there have improved considerably.

Bon Viveur

'Dine with Bon Viveur and Mr. Therm' is now recognised as a great improvement on the original show 'Kitchen Magic.' Nobody will forget in a hurry the publicity which accompanied Bon Viveur's demonstration at the West End's Café Royal in collaboration with Charles Forte. To crown their year's efforts, 5,000 guests attended a Christmas cookery festival sponsored by the North Thames Gas Board, starring the Cradocks.

The International Gas Union held a meeting of its Utilisation (marketing) sub-committee at Murdoch House this year, and a private exhibition of publicity



Devised by Mr. R. J. Gregg, Publicity Manager, Gas Council (pictured here), an eight-language exhibition showing methods of selling gas ran at Gas Council headquarters in June in conjunction with an I.G.U. meeting.

material was staged by the Gas Council for the benefit of the ten countries' representatives present. This material was subsequently sent to Geneva for exhibition.

Publications

The most important decision in the publications field was to include a supplement with the *Architects' Journal* to appear at quarterly intervals over two years. The first was published in November accompanied by an introductory article on fuel. Ten thousand re-prints of each supplement are being taken by the Gas Council and these will be bound and distributed to area boards when the series is complete. But as circulation of the journal is 14,000 a month, a large number of the 'right' people are going to see this supplement.

Among other publications issued during the year were: 'Gas and the School Meals Service,' 'List of Tested and Approved Gas Catering Appliances,' 'Food from the Fridge,' 'No More Guilty Chimneys,' 'Gas Snuffs Out Black Smoke,' 'Christmas Cooking' (in conjunction with Cordon Bleu cooking school), and 'National List of Gas Offices and Showrooms.'

Published in collaboration with the Good Housekeeping Institute were recipe booklets for sale on bookstalls, 'County Fare,' 'Soups, Sauces and Savouries,' and 'Continental Cookery.'

Films

There is still considerable room for expansion in the use of Gas Council films through personal contact. The Gas Council can make up some very good shows, and people in the industry should remember that if they are engaged in organising any social function—whist drives, for example—a selection of these films can be shown. And more could be done to show them in hotels, where, particularly in bad weather, Sunday shows are often given on private projectors.

The 'Gasmanship' series on sales training was completed during the year. Also on the educational side, 'The Story of Gas,' which is 'the biggest sponsored film project ever,' is having a very successful career. This comprises 14 films, plus film strips and wall charts, covering every aspect of the gas industry. and is shown in schools, technological colleges, and so on.

'Keep it Clean' bids fair to rival 'Guilty Chimneys' as a semi-documentary, and Mr. Pastry's film 'Method and Madness' is still the most famous and popular. Both 'The Vital Flame' and 'Guilty Chimneys' have been televised. Several new films are being made to bring the library completely up to date.

The 'Mini-cini' in Murdoch House is very popular and constantly in use for various organisations who come to see films before planning their own shows.

By the end of March, 1957, 'non-theatrical' audiences who have seen Gas Council films in the year may well total about 7 mill. The number of films despatched in October this year was the highest ever recorded. Since April 1, 1956, the Council alone has issued 9,000 films (not strips), which represents a 50% increase over the same period in 1955.

Pay Increases All Round for the Industry's Employees

Industrial Relations

THE gas industry's employees—professional, technical, administrative, clerical, and manual—were all given pay increases during the past year.

Employees whose interests were taken care of by the National Joint Council for Gas Staffs had graduated increases starting on February 1. The same sort of 'step-by-step' process was applied to those whose national negotiating machinery is labelled the 'National Joint Standing Committee for Intermediate Grades.'

Manual workers, including craftsmen, had flat rate increases. The machinery for unskilled employees and gas fitters is the National Joint Industrial Council. Maintenance craftsmen looked to the Craftsmen's Committee of the N.J.I.C. and the Confederation of Shipbuilding and Engineering Unions.

Senior staff who have opted to come within the jurisdiction of the Senior Officers' Joint Council have had salary grades established for use by the area boards. Certain categories of employment are excluded, however, in addition to staff who have opted, in salary groups, to stay outside the Council.

Equal Pay

More developments took place over equal pay for staff women. It will be remembered that in 1954 the Chancellor received a deputation from the staff side of the Civil Service Whitley Council. This followed a statement in his Budget speech that he wished to discuss how best to make further progress.

At his suggestion it was agreed that there should be negotiations through the National Whitley Council to produce a scheme which might be introduced gradually in the non-industrial civil service. A joint committee was set up and the Government accepted its recommendations and agreed to put the scheme into effect from January 1, 1955.

The scheme was that existing women's scales and rates of pay should be improved in seven equal annual stages. The last stage should see common scales in operation.

Sick Pay

The gas industry and other public authorities accepted the principle of equal pay and agreed to consider the absorption of the differences in rates over a period of six years. But it was also agreed that there should be scales for certain special women's jobs. These Special Scales began on April 1 this year.

The gas industry manual workers' sick pay scheme has been revised this year. Now the scheme provides for payment of a normal weekly wage from the first day of certified sickness where it extends to 12 consecutive calendar days or more. This brings the system nearer to the electricity industry's arrangements whereby an employee is entitled to his normal weekly wage from his first day of sickness for a period of up to 13 weeks.

Subsistence Allowances

The National Joint Council for Gas Staffs reached an agreement which was to be adopted as a guide in respect both of subsistence allowances, and of expenses where staff are compulsorily transferred.

Employee Education

Development during 1956 of employee education included the day release of qualified personnel for further train-

ing, the establishment of pupilage schemes, sandwich courses and scholarship schemes, and the setting up of divisional training centres.

Thousands of employees took advantage of facilities for approved day and evening classes, and also took correspondence courses.

While such courses generally lead to technical and scientific qualifications, a large number of employees studied administrative, secretarial, accountancy and sales subjects. And there has been a steady increase in the numbers attending courses in management or business administration. Also, several thousands of employees attended courses leading to examinations in gas fitting of the City and Guilds of London Institute and the regional examining unions.

Sandwich courses in gas engineering have been established at the Salford Royal Technical College and in Birmingham, and a similar course will probably begin soon in London. Some employees are attending these courses in civil engineering, applied chemistry, applied physics and electrical engineering.

The National Scheme for Gas Fitters is intended to assess the qualifications of these tradesmen by means of examinations held by the City and Guilds of London Institute and certain regional examining unions. It lays down the procedure by which apprentices and other appropriate persons may advance to the status of first- or second-class gas fitters. Practical and theoretical instruction is given by area boards and/or technical colleges, according to local circumstances.

To supplement training on the job, examination bays, which are constructed to a national specification, are often retained for day-to-day training, and mock examinations and trade tests are held for prospective candidates. Co-operation is maintained with the Ministry of Education Inspectors to ensure that the highest possible standard of instruction is given in local colleges. One interesting feature is the refresher courses which have been organised for gas fitting personnel returning from military service.

The extent of supervisory training varies, of course, according to local needs and circumstances, but its importance is generally acknowledged.

The pattern of the Gas Council courses in management and general subjects at Brooklands County Technical College has changed since they were first organised. Alterations have been made in the light of experience. Experiment and also comments received from students have helped to develop the courses' value. Two innovations have been the extension of the 'brains trust' technique and the inclusion of a greater number of sessions dealing with productivity.

To help young people decide whether or not the gas industry is the career they want, two booklets have been prepared entitled 'Careers in the Gas Industry' and 'Pathways to Opportunity.'

There are signs that joint consultation has developed steadily throughout the industry during the past year. More and more is the realisation growing that the joint committee is not a medium for the ventilation of purely personal grievances, but a means by which constructive suggestions can be put forward with a view to increasing the efficiency of operation.

Employers and trade unions throughout industry have been approached by the Government concerning the urgent need for a new and positive examination of practices impeding the full and efficient use of manpower resources, and the gas industry is setting a good example in co-operation in this respect.

Six hundred workers' representatives met the top management of the North Western Board in April. Chatting between sessions are left to right: Mr. Welman, Sir Henry Jones, Sir Harold Smith, Alderman C. Dunn, Mayor of Blackpool, and Mr. Owen Francis, Under-Secretary, Ministry of Fuel and Power.

Diary

January 1.—SOUTH EASTERN G.C.C.: Caxton Hall, Westminster, London, S.W.1. 11 a.m. Ad hoc committee.

January 2.—INSTITUTE OF FUEL LECTURE: Institution of Civil Engineers, Great George Street, London, S.W.1. 5.30 p.m. 'Approval Tests for Coke Burning Domestic Appliances.'

January 4.—LONDON AND SOUTHERN JUNIORS: Meyerstein Theatre, Westminster Hospital Medical School, Horseferry Road, S.W.1. 'Application of Mathematical Techniques to Research Problems in the Gas Industry,' E. Woodcock.

January 8.—MIDLAND JUNIORS: Staff Mess Room, W.M.G.B., Birmingham District, Council House, Birmingham. 'Some Aspects of Gas Distribution,' B. G. Hawkings.

January 8.—EAST MIDLANDS G.C.C.: The Guildhall, Nottingham. 11.30 a.m.

January 9.—SOUTH WESTERN SECTION, I.G.E.: Meeting cancelled.

January 9.—INCORPORATED PLANT ENGINEERS, LEICESTER BRANCH: Bell Hotel, 6.30 p.m. 'Incentive Schemes for Maintenance Work,' D. J. Winfield, Personnel Administration Ltd.

January 10. — INCORPORATED PLANT ENGINEERS, NORTH EAST BRANCH: Roadway House, Oxford Street, Newcastle-upon-Tyne. 7 p.m. 'Space Heating,' F. W. Watson.

January 11. — SCOTTISH WESTERN JUNIORS: 522, Sauchiehall Street, Glasgow, C.2. 7.15 p.m. 'Ladies' Night.' Paper by Miss S. McDonald.

January 12. — EAST OF SCOTLAND JUNIORS: Dundee. Short Paper Day.

January 15.—INSTITUTION OF CHEMICAL ENGINEERS, NORTH WESTERN BRANCH: The Grosvenor Hotel, Chester. 7 p.m. 'Vacation Training for Chemical Engineers,' A. J. Carter.

January 16.—SOUTH EASTERN G.C.C., Kent County Division: S.E.G.B., King Street, Maidstone. 2.30 p.m.

January 16.—INSTITUTION OF CHEMICAL ENGINEERS, NORTH WESTERN BRANCH: The University, Leeds. 7 p.m. 'Equilibrium Flash Vaporisation of Coal-tar and Coal-tar Fractions,' D. K. H. Briggs and F. Popper.

For some 1956 has brought the shadow of

REDUNDANCY

Gas Officers Guild Chief Comments On Past Year's Activities

ONE of the more serious problems to which the Gas Officers Guild has had to apply its resources this year has been the displacement of personnel arising from the integration of manufacturing units and other reorganisation schemes.

In the South Western Gas Board's area the matter of redundancy has caused the deepest concern. Since nationalisation 108 manufacturing stations have been reduced to 48, and before long further shut-downs will bring the remaining total to a mere 15.

Mr. Alexander.

Mr. J. R. W. Alexander, Executive Chairman of the Gas Officers Guild, in an interview with the 'GAS JOURNAL' said: 'Generally speaking, I don't believe it is necessary in the gas industry for integration to lead to the dismissal of professional men—not with good management and planned development, coupled with early consultation with the organisations representing personnel potentially concerned.'

The recruitment of suitably qualified men was by no means easy, and normal—or even early, retirement, together with wastage, should take care of the situation.

Discontent ?

Mr. Alexander, who was commenting on some aspects of the past year, said that the relatively modest remuneration the gas industry offered, coupled with a feeling of insecurity if redundancy became prevalent, might well lead to discontent, to men not pulling their weight, and to increasing difficulties of recruitment.

If a Board was unable to avoid dismissal, he said, the person should not be chosen from men over 50 years of age, with long service to the industry. Such men were particularly defenceless, especially if they were specialist technicians. They had little prospect of suitable employment elsewhere, and nearly always suffered both a premature loss of salary and a reduction in any pension to which they might be entitled.

The Guild considers that if a Board does wish an employee to retire a few years before reaching retiring age, he should receive the pension he would normally have secured.

The Gas Council should establish a 'clearing house,' suggest the Guild, to facilitate the placing of redundant employees in other areas, should they so desire.

What is the situation in the South West at present? Here is how it is described by the Gas Officers' Guild: In 1954 the Board's administrative structure was reorganised on the basis of three functions —production, accountancy, and general consumer service, which included distribution. The organisation then established has been reorganised again this year, with the same six divisional controls but incorporating 13, instead of 24, administrative districts and 43 branches.

This, it was understood, would involve redundancy for 70 staff employees in accountancy and 150 in general consumer service, a total of 220. There had to be added an unknown number of redundant staff in production, say 30, giving a total of 250. This was exclusive of officers, among whom the posts of about 18 were declared redundant.

Staff employees were given—according to length of service—up to six months' notice of the termination of their employment, although some will be re-employed, while certain of the officers involved had a 'brief opportunity' of applying for, and some were appointed to, staff positions.

Compensation

The Guild say that those who have to leave the industry, or suffer loss of emoluments, and can conform with the requirements of the Compensation Regulations which, *inter alia,* now demand at least 15 years continuous service in the industry, will be entitled to compensation.

This, they add, must be substantially less than the remuneration lost.

The Board, on the other hand, regards redundancy under its present plan as deriving from nationalisation, but—while anxious to act with consideration in every appropriate case—deprecates the rigid formulation, disclosure and application of principles and details by the Board.

In general, the reorganisation should not result in reduction of present salary at any time, although participation in future salary increase awards would be limited or even eliminated. But the Guild asks for recognition that 'the integration operation shall be without prejudice in other respects—as to pension, for example—and, in particular, that an officer does not cease to be an officer by reason of relegation to a staff post.'

Other Activities

During the year a National Salaries Table was drawn up and approved by the Senior Gas Officers' Joint Council. This operated from April 1, 1956, but the initial placing of officers in the table's groups was not due to be completed till the end of this month.

The principle of the table is to define each officer's 'salary group' in relation to the post he occupies and to show what increments he may expect. There are rights of appeal.

The Gas Officers Guild has introduced during the year two schemes of insurance: The Private Patients' Plan, which secures substantial payments to off-set the cost of surgical, nursing and hospital fees and a Group Accident Scheme under which members and their wives may be insured against personal accidents.

THE INSTITUTION OF GAS ENGINEERS

Record attendance watch Duke of Edinburgh accept Honorary Life Membership Certificate

THE seven district Sections of the Institution of Gas Engineers and the affiliated Irish Gas Association and Scottish Association of Gas Managers have all had an active and successful year. Many papers of high standing and covering a wide range of interest have been presented and discussed at their meetings.

Several of the Sections and the Scottish Association arranged further discussions of the Coke Symposium which was originally presented at the 21st Autumn Research Meeting. These discussions proved most valuable and attracted a wide range of municipal and public interest.

The Junior Gas Associations which, through the British Junior Gas Associations' Joint Council are also affiliated to the Institution, have been active throughout the year. The accounts that have appeared in the technical Press of their meetings and of their visits to various works indicate that their programmes have been designed to provide for interest over a broad field.

The total membership of the Institution, which is now 3,382, has shown little change during the year, the number of new members being practically balanced by the loss of members through death or resignation. The death during the year of 24 members is reported with regret.

Seven members of the Institution were included in the New Year or Birthday Honours Lists for 1956. They are:—Knighthood: Sir Henry Jones, M.B.E. (President); O.B.E.: Mr. C. A. Masterman (member), Mr. J. L. Hyslop (member), and Mr. R. S. Snelling (associate); M.B.E.: Mr. O. P. Cronshaw, Mr. J. Hunter-Rioch, and Mr. A. Jamieson (members).

The 93rd annual general meeting, at the Festival Hall, London, was under the Presidency of Mr. W. K. Hutchison, C.B.E.

This was one of the most successful Institution meetings; not only did the Duke of Edinburgh accept the certificate of Honorary Life Membership during the meeting, but attendance was a record, 2,000 members, ladies and guests being present.

In accepting Honorary Life Membership, the Duke said: 'I was very flattered to receive your invitation, but I will tell you that I accepted first, because I am convinced that the gas industry has a great future and, secondly, because I believe that your Institution will be the most important influence in shaping that future.'

The meeting was also noteworthy for the presentation to Sir Harold Smith of the Birmingham Medal for 1956, which

represents the highest honour of the Institution. The award to Sir Harold is an acknowledgment of outstanding service to the gas industry and to the Institution.

Throughout his long career he has been a firm supporter of the Institution of which he is a Past President and has been for many years an Honorary Auditor. He took a leading part in the development of the Institution's educational work and was also actively concerned with its research and technical work.

A perusal of the Transactions of the Institution for the last 30 years and more provides some indication of the many contributions he has made to its technical and educational work.

Besides a stimulating Presidential Address from Mr. Hutchison, the programme for the annual meeting included a number of technical papers relating to the production, distribution and utilisation of gas and coke which were presented and discussed. An interesting contribution was a paper by Dr. Fritz Gummert of the Ruhrgas Aktiengesellschaft, Essen, entitled 'Problems of Long Distance Gas Supply in Germany.'

A number of works visits were arranged, including a visit by launch from the Royal Festival Hall to the East Greenwich works of the South Eastern Gas Board and visits by motor coach to the East Surrey distribution system of the South Eastern Gas Board, the Gothic works of Main Water Heaters, Ltd., the Mitcham works of Mullard, Ltd., the Century works, Lewisham of Elliott Brothers (London), Ltd., and the Kensal Green works of the North Thames Gas Board.

A display and exhibition of needlework by the Royal School of Needlework was arranged at the headquarters of the Institution when Mrs. W. K. Hutchison entertained the ladies. A visit for the ladies to Ham House was also arranged.

The President's reception and dance was held at the Royal Festival Hall and the President's luncheon was held at the Savoy Hotel when the Minister of Fuel and Power, Mr. Aubrey Jones, was the principal guest.

Medals and Prizes

In addition to the Birmingham Medal, 1956, referred to above, the following awards were made:—

(1) The Institution Gold Medal for 1955 was awarded to G. H. Fuidge and J. R. Dewhurst, for a paper on 'The Tolerance of Aerated-burner Appliances to Variations in the Combustion Characteristics of Town Gas,' read at the 21st Autumn Research Meeting on November 22, 1955.

(2) The H. E. Jones London Medal for 1955 was awarded to L. J. Clark, B.E.M., for a paper on 'Pumping of Liquids on Gasworks,' read at the 92nd annual general meeting of the Institution on May 25, 1955.

(3) The Institution Silver Medal for 1955 was awarded to D. C. Elgin for a paper on 'An Administrative Approach to Technical Efficiency,' read at a meeting of the Scottish Association of Gas Managers, in Peebles, on April 22, 1955.

(4) The Institution Bronze Medal for 1955 was awarded to F. Grocott, for a paper on 'Oxide Purification,' read at a meeting of the Midland Junior Gas Association, in Birmingham, on April 19, 1955.

(5) The William Dieterichs Memorial Prize for 1955 was awarded to J. A. Prigg, for a paper on 'Aerated Burners,' read at a meeting of the London and Southern Junior Gas Association, in London, on February 4, 1955.

Autumn Research Meeting

The 22nd Autumn Research Meeting was held on November 20 and 21 at Church House, Westminster, under the Chairmanship of the President, Sir Henry Jones. The technical and educational reports of the Institution and research reports of the Gas Council, together with technical and research papers, were presented and discussed.

Parallel sessions were held on the morning of the second day when in the Assembly Hall papers on heat transfer and on industrial utilisation of gas were considered, while in the Hoare Memorial Hall under the Chairmanship of Dr. J. Burns, G.M. (Vice-President), the programme comprised papers on combustion characteristics of gas and on flues.

In addition, the programme included the annual reports of the Chairmen's Technical Committee and of the Gas Education Committee of the Institution and the 47th Report of the Joint Refractories Committee. There were papers on coal science in relation to the gas industry, the hydrocarbon content of fuel gases, the hydrogenation of oils to gaseous hydrocarbons and the application of consumer research to the gas industry.

The President gave a brief summary of the work of the first five Gas Council Research Scholars.

The following awards were presented:

(a) *Diploma in Gas Engineering (Manufacture):*

To Boris Mamers (Chesterfield) for a thesis entitled 'Some Aspects of Nitrogenous Gum Formation and its Prevention in Gasworks Practice.'

In making this presentation, the President paid tribute to the courage and perseverance of Mr. Mamers who came to this country soon after the war as a displaced person with practically no knowledge of English. By sheer hard work and tenacity he had progressed from a stoker on the gasworks to a senior position in the laboratory. At the same time he had continued his studies mastering English and passing the Institution's examinations culminating in the award of the Diploma.

Mr. O. P. Cronshaw with his family at Buckingham Palace.

(b) *Charles Hunt Memorial Medals, 1956:*

Associate Membership Examination (Gas Engineering Manufacture) — Frederick Cyril Brothwell (Darlington).

Associate Membership Examination (Gas Engineering Supply) —George Barclay Scott (Glasgow).

(c) *James Archibald Maclay Memorial Prizes, 1956:*

Gas Technology (Manufacture)— Donald Barber (Thurnscoe).

Gas Technology (Supply) — Leslie Thomas Mason (Croydon).

Gas Salesmanship and Consumer Service — John Frederick Gunner (London).

The fifth plenary meeting of the World Power Conference, held in Vienna in June, 1956, was attended by a representative British delegation including the President, the two Vice-Presidents, the Honorary Secretary and the Secretary of the Institution. The British National Committee had arranged for the preparation of some 25 papers, of which the following six, of particular interest to the gas industry, were presented by members of the Institution: 'Coal Carbonisation in Continuuos Vertical Retorts in Great Britain,' by Dr. J. Burns, G.M.; 'Developments in the Gasification of Solid Fuels in Great Britain,' by Dr. F. J. Dent; 'Petroleum Products as Raw Materials in the Manufacture of Town Gas in Great Britain,' by J. E. Davis, O.B.E.; 'Long-distance Gas Transmission — Economic and Technical Considerations,' by E. M. Edwards and W. T. Hird; 'Waste Waters from the Production and Utilisation of Fuels—their Nature, Treatment and Disposal,' by Prof. A. L. Roberts and Dr. W. H. Blackburn; and 'Air Pollution and Waste Gases from the Preparation and Utilisation of Fuels,' by Dr. A. Parker, C.B.E.

B.C.R.A.

The seventh conference of the British Coke Research Association, arranged in conjunction with the Institution of Gas Engineers and the Coke Oven Managers' Association, was held at Church House, Westminster, on November 7. The meeting was presided over by Mr. Leslie O'Connor, C.B.E., Chairman of the Council of the British Coke Research Association, supported by Dr. Burns, Vice-President of the Institution and Mr. G. Hunter, Immediate Past-President of the Coke Oven Managers' Association.

The following papers were presented and discussed: 'Coke Quality,' by G. W. Lee, Director of the British Coke Research Association; 'Coke Quality and Charge Preparation,' by D. Hicks, Director of Scientific Control, N.C.B.;

'The Desulphurisation of Coal and Coke,' by Dr. H. E. Blayden and Dr. R. A. Mott.

At the Public Works and Municipal Services Congress held at Olympia on November 12-17, a session was convened under the chairmanship of the President of the Institution. Two papers by members of the Institution were presented and discussed. The first, entitled 'Gas in the Production and Maintenance of Public Service Vehicles,' was given by Mr. T. H. Pardoe, and the second, on 'Heat Service by Coke in Municipal and School Buildings,' was given by Mr. C. A. Deas.

The Institution of Gas Engineers co-operated in arrangements made for a fuel efficiency conference organised by the Institute of Fuel at Olympia on October 2 to 10, 1956. At one of the sessions, devoted to the efficient use of oil and gas, a paper entitled 'The Efficient Use of Gas in Industry' was presented by Mr. A. E. Tyrrell and discussed.

Technical Activities

The 17th report of the Chairmen's Technical Committee which was presented and discussed at the 22nd Autumn Research Meeting in November contains an account of the technical work of the Institution for the year 1955-56. The Institution has continued to collaborate with various Government Departments and to maintain liaison with kindred organisations and societies. Apart from the conferences to which reference has already been made, the Institution has been officially represented at a number of conferences organised by other bodies during the year.

Dr. W. H. Blackburn and Mr. F. C. Smith, M.B.E., were the Institution's delegates to the Health Congress arranged by the Royal Society for the Promotion of Health held at Blackpool on April 24 to 27.

At the 23rd annual conference of the National Smoke Abatement Society held at Southport on October 3 to 5, the Institution was represented by Dr. F. J. Eaton and Mr. W. Hodkinson, O.B.E.

The Institution has continued to take a prominent part in the activities of the Internationad Gas Union. It is represented on the Council by Mr. W. K. Hutchison and Mr. J. H. Dyde and also by members of the Institution on a number of international technical committees appointed by the Union to study specific problems.

A number of the Codes of Practice relating to Gas Utilisation, originally prepared by the Codes of Practice sub-committee of the Institution in 1946 and 1947, are being revised in the light of modern developments.

The second edition of the Institution's book, 'Gas Works Effluents and Ammonia,' originally written by Dr. A. Key, has been published. It has been prepared by Mr. P. C. Gardiner and, while it contains much of the fundamental material contained in the previous edition, it has been brought up to date and enlarged. An attempt has been made to give a broader overall picture of the problems from the practical aspect and consideration has been given to recent legislation concerning the disposal of trade effluents.

Sir Henry Jones with his family at his investiture.

The Gasworks Safety Rules Committee, at the request of H.M. Senior Chemical Inspector of Factories, has considered the use of auxiliary charging holes on carburetted water gas plant as means of access for inspection or repairs and recommends that where the auxiliary charging hole is smaller than the minimum permitted for access by the Factory Act (*i.e.*, 18 in. by 16 in. or 18 in. diameter) it should not be used for this purpose but the charger should be removed to afford adequate access.

Amendments to two of its recommendations relating respectively to the safe operation of tower purifiers and to the model specification for platforms, ladders and stairways have been prepared by the Committee and were published as Supplements 1 and 2 to the 17th report of the Chairmen's Technical Committee.

Committee Renamed

The Pipes Committee has now been renamed the Gas Distribution Committee, a title which is felt more accurately to represent the scope and nature of its activities. During the year it completed its work on the 'Recommendations for Mainlaying,' which have been published as a separate booklet (Communication 491). These Recommendations represent an attempt to correlate into a composite form those practices which are considered best. They are intended for guidance and do not purport to constitute a manual of instruction.

The Committee has continued its collaboration with the manufacturers of cast iron pipes through the Cast Iron Pipes Liaison Committee. It is pleased to report that the Cast Iron Pipes Association has agreed to publish a manual of flexible joints for cast iron gas mains (socket and spigot type) which will include the recommendations of the Committee in regard to flexible joints for cast iron mains, together with full dimensional details and diagrams of the various types of joint and manufacturer's instructions.

Educational Activities

An account of the educational activities of the Institution is given in the 33rd report of the Gas Education Committee which was presented and discussed at the 22nd Autumn Research Meeting.

A short course for teachers in Gas Fitting was arranged by the Ministry of Education at the City of Cardiff Training College, on July 9 to 16.

Forty-nine teachers from all parts of the country attended the course which was officially opened jointly by Sir Henry Jones, President of the Institution, and Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, and was conducted under the directorship of Dr. N. S. Capper, assisted by two other of Her Majesty's Inspectors. The curriculum consisted in the main of lectures from specialists in teaching techniques together with lectures from officers of the Wales Gas Board on distribution and indus-

trial utilisation of gas. Works visits were arranged by the Board. This was a most successful course and credit is due to the members and officers of the Wales Gas Board and to the Principal and staff of the City of Cardiff Training College for the considerable assistance given to Dr. Capper and his colleagues.

Much attention has been given during recent months to the initiation of sandwich courses in gas engineering. The pioneers were the Royal Technical College, Salford, and the North Western Gas Board. At this College three courses in production, distribution and utilisation respectively have been operating for two years. The course in civil engineering, which includes gas engineering for those requiring it, at Enfield Technical College has also been operating for three years.

During the year courses at the College of Technology, Birmingham, in which the West Midlands Gas Board collaborated with the College authorities, were begun. At present these are confined to gas engineering (manufacture) and (supply) but they may later be further subdivided as at Salford. Arrangements are being made for courses to be commenced on the 31st of this month at the Westminster Technical College, which will be attended by students drawn mainly from the North Thames and South Eastern Gas Boards.

The Institution, which considers that these courses offer a very satisfactory means of training students likely to reach senior technological positions in the industry, has encouraged their development. It is felt, however, that the courses at Salford, Birmingham, Westminster and Enfield are sufficient to provide for the present needs of the industry in this direction.

After an interval of four years, it was decided to convene a gas education conference (the ninth) at which representatives from the Institution's committees, the City and Guilds of London Institute, the area gas boards, and the technical colleges and institutions were invited to discuss all aspects of the Institution's educational activities. The meeting was held at the Institution of Mechanical Engineers, London, on October 18. There was a very useful exchange of views on many aspects of the Institution's educational work.

Mr. L. W. Andrew gave the fifth Christmas Lecture for Young People arranged by the Institution. His subject was 'Harnessing the Flame' and the lecture was given on January 3, at the Imperial College of Science and Technology. It was attended by over 200 young people from schools in London and the home counties.

'Flame'

Mr. F. Brinsley gave his now famous lecture on 'Flame' at Liverpool, Manchester, Paisley and Alloa to large audiences totalling 1,700. This is the fourth year that Mr. Brinsley has lectured to young people in various parts of the country and several thousand have been able to enjoy his most instructive and entertaining lecture. Through the generosity of his Company, Radiation Ltd., he has been able to make a remarkable contribution to this important educational activity of the Institution.

The sixth lecture in London will be given by Mr. G. H. Fuidge, Chief Physicist of the South Eastern Gas Board, on the subject of 'By-products of Coal.' This will be held at the Sir John Cass College, London, E.C.3, on January 1, 1957. Mr. Brinsley will lecture at Kilmarnock on January 9, 1957.

Entries for the April and October, 1956, examinations for the Associate Membership examination showed a marked increase in numbers and the general level of achievement was satisfactory. Most of the candidates for the examinations in gas engineering (manufacture) or (supply) had studied by means of National Certificate courses and the results now being obtained happily confirm the views of the Gas Education Committee expressed some while ago that, apart from sandwich courses, the National Certificate courses offer the most satisfactory approach to the Associate Membership examination.

In the examination for the Certificate in gas salesmanship and consumer service in 1956 there was unfortunately a slight decrease in the number of entries and there was also some deterioration in quality compared with previous years. No special significance is attached to these results, however, particularly since they still compare favourably with those achieved in many other examinations.

The Institution of Gas Engineers has had a busy and successful year. No account of its activities would be complete without an expression of its indebtedness to the many people who have contributed to the work of the Institution by service on the Council or committees or by contribution of papers or discussion, or by representing the Institution on committees or at conferences of kindred organisations and societies. The Institution has also continued to receive, and gratefully acknowledges, the support in this connection of the Gas Council, the area gas boards and the various member firms of the Society of British Gas Industries.

APPOINTMENTS ★ PROMOTIONS ★ RETIREMENTS

Personalities in this Year's News

PROBABLY the 'appointment of the year'—it certainly attracted the most interest—was that of Mr. Sydney Smith to the Scottish Gas Board following the retirement of Sir Andrew Clow on April 30. Mr. Smith was previously Chairman of the East Midlands Gas Board.

Prior to nationalisation he was General Manager and Chief Engineer to the Romford Gas Company, and was made Deputy Chairman of the East Midlands Board in 1949. He became Chairman in February, 1952, in succession to Mr. H. F. H. Jones (now Sir Henry) on the latter's appointment as Deputy Chairman of the Gas Council.

A welcome announcement was the reappointment by the Minister of Sir Harold Smith as Chairman, and Sir Henry Jones as Deputy Chairman of the Gas Council when their present terms of office expire on December 31, 1956, and February 1, 1957, respectively.

SOUTHERN MOVES

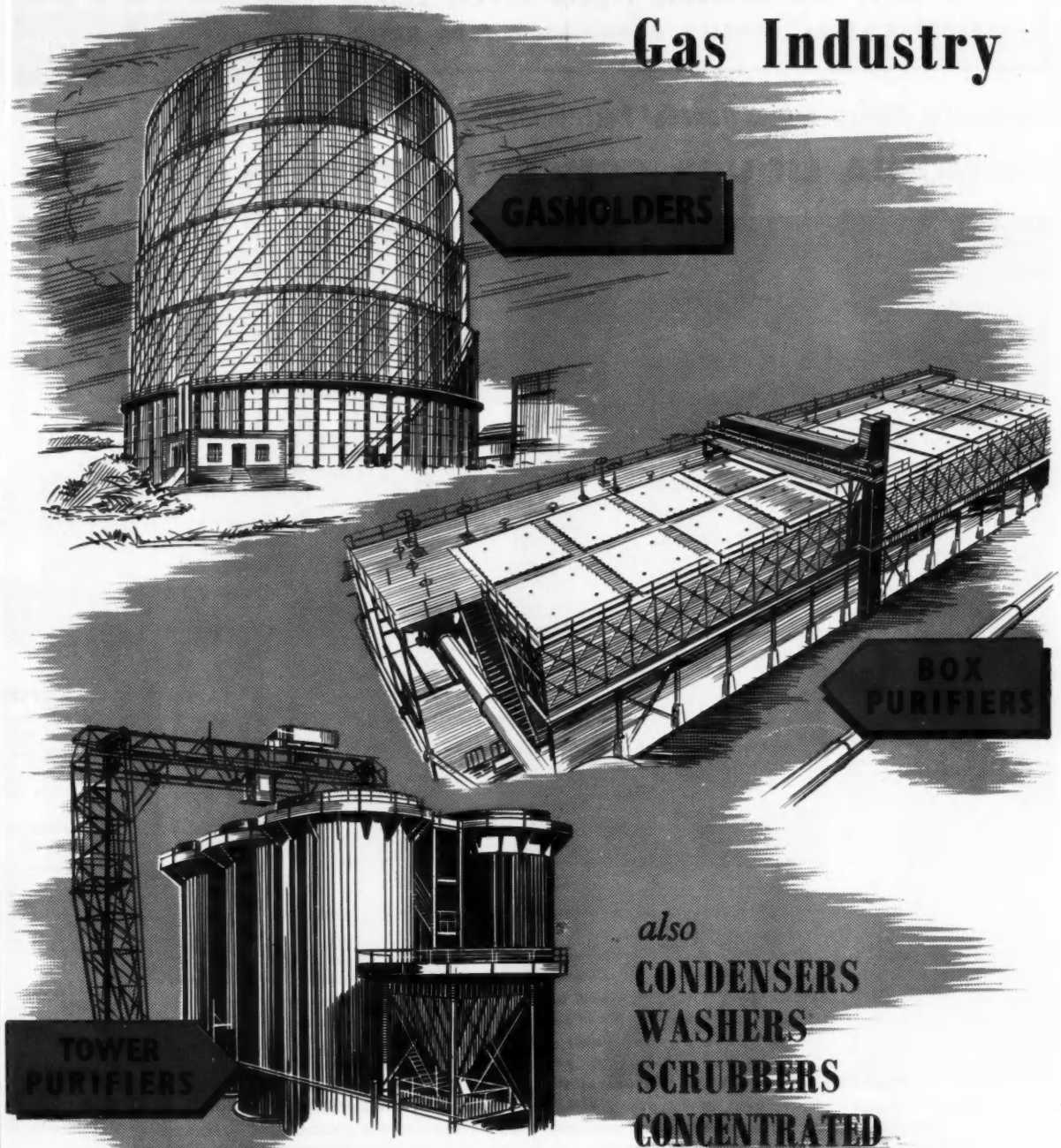
Mr. S. E. Whitehead, O.B.E., retired from the position of Deputy Chairman of the Southern Gas Board which he had held since January, 1949. He had been in the gas industry for 47 years. He was President of the Southern Association of Gas Engineers and Managers in 1937, and President of the Institution of Gas Engineers from 1944-45.

He was succeeded by Mr. A. F. Hetherington, who was Commercial Manager of the Board. Before his appointment to the Southern Board, Mr. Hetherington was Divisional Manager to the Central Division of the North Thames Board.

Dr. A. E. Haffner, who had been Group Engineer of the North Thames Gas Board was appointed Chief Engineer to the Southern Board in May. At the end of the war Dr. Haffner was appointed Station Engineer of the Fulham works and became Group Engineer in 1953. He is a senior member of the Council of the Institution of Gas Engineers.

Mr. John Tattersall Haynes, O.B.E., Divisional General Manager of the Western Division of the Southern Board, retired at the end of September. Mr. Haynes was President of the Institution of Gas Engineers in 1953. In 1947 he was appointed Engineer and General Manager of the former Bournemouth Gas and Water Company, a position which he held until his retirement.

Service to the Gas Industry



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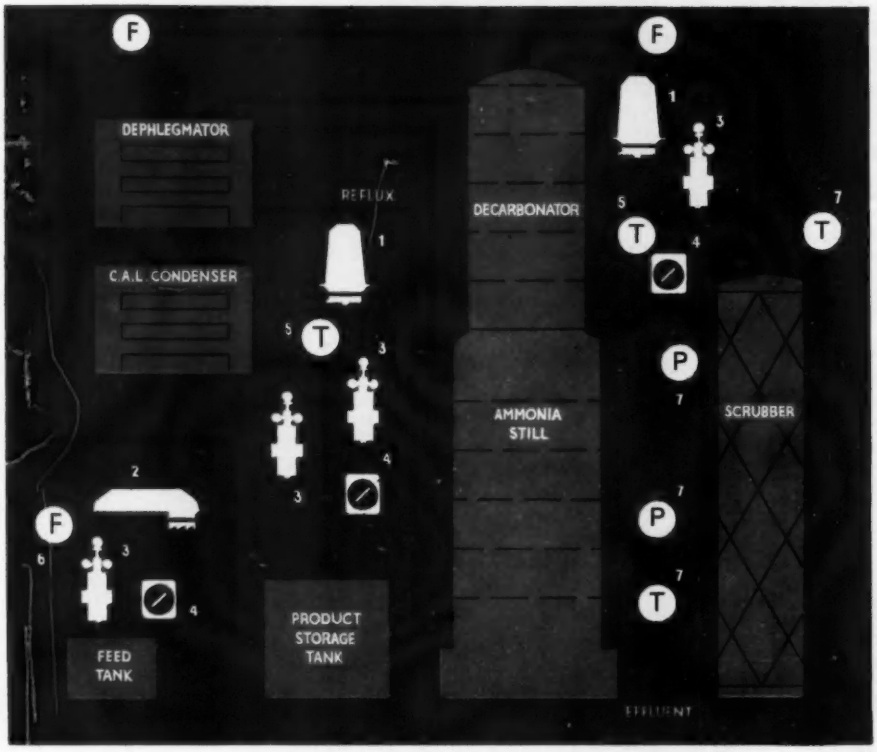

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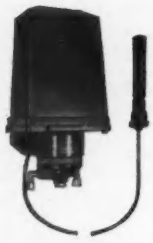

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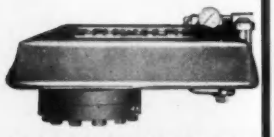

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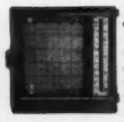

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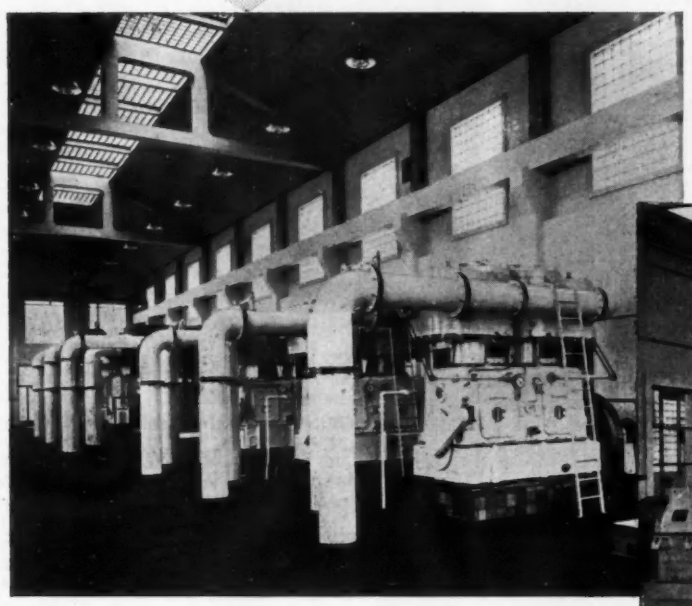

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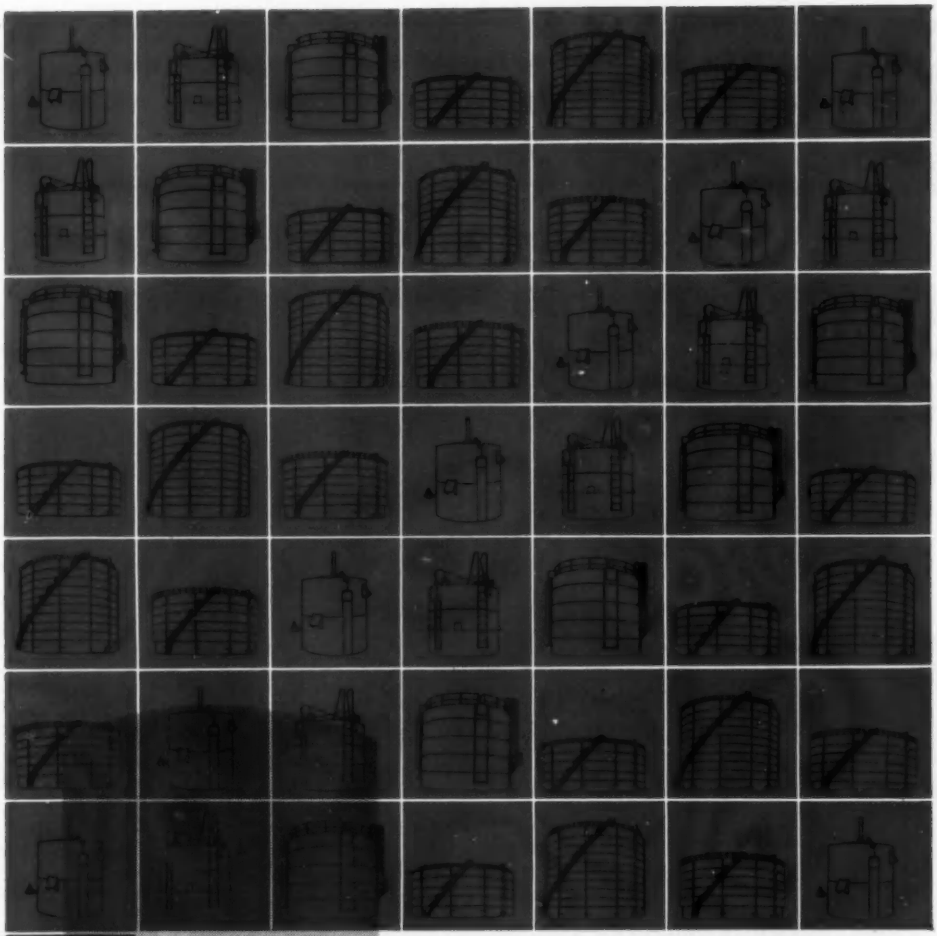

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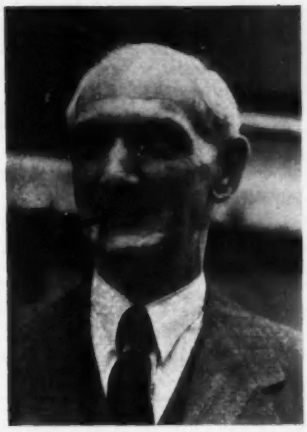


Mr. J. T. Haynes who retired at the end of September from the Southern Gas Board.

Another appointment in the Southern Board was that of Mr. Frederick Bell as Distributing Engineer. Mr. Bell had been Distribution Engineer to the Liverpool Group, N.W.G.B.

Other Southern Gas Board moves were:

Mr. W. Hyde was appointed Chief Accountant as from September 1, in succession to Mr. W. H. Haddleton. Mr. H. K. Wilkes was appointed Deputy Chief Accountant and Mr. W. H. Elkerton was appointed Purchasing Officer on March 1. Mr. W. Hyde was appointed Internal Auditor and Methods Officer and Mr. G. C. Yorke and Mr. B. G. H. Clegg, Solicitor and Statistician, respectively.

NORTH THAMES

Important North Thames appointments as a result of Dr. Haffner's move included: Mr. K. C. Mead as Station Engineer, Fulham (with the status of Group Engineer); Mr. E. J. Edwards as Station Engineer, Nine Elms (with the status of Group Engineer); Mr. A. F. Grant as Station Engineer, Kensal Green; Mr. B. W. Dawkins as Station Engineer, Bow Common; Mr. P. G. S. Fry as Station Engineer, Mill Hill; and Mr. W. J. K. Ware as Station Engineer, Hornsey.

Mr. W. H. Moys was appointed Staff Controller, North Thames Gas Board, in succession to Mr. R. N. Bruce on May 1.

NORTH WESTERN

In succession to the late Mr. A. Henshall, Mr. W. Hodkinson, O.B.E., was appointed Deputy Chairman of the North Western Gas Board. Mr. Hodkinson was the Chief Technical and Planning Officer of the Board. He was formerly General Manager of the United Kingdom Gas Corporation. Mr. Hodkinson, who is a member of the Institution of Chemical Engineers and of the Institution of Gas Engineers, received the latter Institution's Bronze Medal in 1935 and its Gold Medal in 1947. He was awarded the O.B.E. in the 1952 New Year Honours List.

Mr. F. Litler, Deputy Chief Technical and Planning Officer of the N.W.G.B. since vesting day, was appointed to succeed Mr. Hodkinson.

Mr. R. H. Naylor, who had been Deputy Distribution Engineer, Liverpool Group, N.W.G.B., for six years was appointed Group Distribution Engineer, succeeding Mr. F. Bell.

SOUTH EASTERN

In May we announced the appointment of Mr. R. H. Sandford Smith as Deputy Chairman of the South Eastern Gas Board. On the formation of the Board in 1949, he had been appointed Acting Secretary, and later became Secretary. Previously he had been Secretary of the South Eastern Gas Corporation, Ltd.

When Mr. C. T. Price, M.B.E., M.C., Engineer to the East Surrey Division of the S.E.G.B. retired at the end of October, the occasion brought to a close 188 years' service which his family had given to the gas industry, beginning in 1851 when Edward Price built and later managed Hampton Court gasworks.

Mr. C. J. B. Sawbridge was appointed Deputy Chief Accountant of the South Eastern Board following the retirement of Mr. R. N. Barnett.

SCOTTISH

Mr. Russell O. Emmony was appointed Distributing Engineer to the Scottish Board. He was previously Distribution Engineer to the Lanarkshire Division of the Scottish Gas Board.

Mr. H. R. Hart was appointed General Manager and Mr. E. G. Smith Deputy General Manager of the Glasgow Division of the Scottish Gas Board. Mr. Hart was Commercial Manager, East Midlands Gas Board, and Mr. Smith had been Deputy Divisional Controller of the Glasgow Division. Mr. Smith is a past President of the Scottish Association of Gas Managers.

An event of the year was the marriage of Sir Harold Smith's daughter, Patricia, to Mr. John Gray. The bride travelled to the wedding in this 100-year-old Park Drag coach. Sir Harold's younger daughter, Diana Margaret, was married later in the year.

Mr. W. Hodkinson, who was appointed Deputy Chairman of the North Western Gas Board. Mr. Hodkinson was the Chief Technical and Planning Officer of the Board.

OTHER MOVES

Mr. W. J. Collins Garrard, Divisional General Manager of the Ipswich Division of the Eastern Board, retired on June 30, and Mr. R. Whiting took his place on July 1.

Mr. C. J. P. de Winton was appointed Technical Editor of the 'GAS JOURNAL' at the end of April. Mr. de Winton was after the war appointed Engineer and Manager of the Chapel Whaley and District Gas Company at Whaley Bridge in Derbyshire, later to become part of the North Western Gas Board. When this works was closed down in 1952, as a result of integration with the North Cheshire Group, Mr. de Winton was appointed Technical Librarian to the Liverpool Group, an appointment he held for three years until promoted to Personal Assistant to the Production Engineer, Mr. W. S. Hubbard.

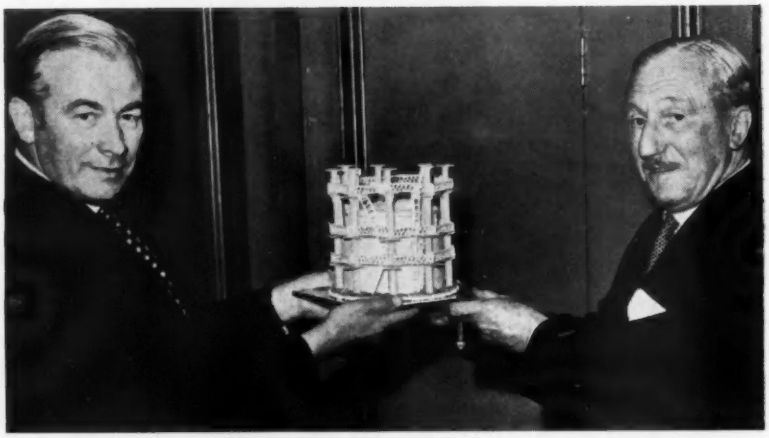
Walter King Ltd.

Another important development in this office was the appointment to the Board of Directors of Mr. Philip W. B. King and Mr. Sidney T. Cullen, Northern Manager and Business Manager respectively of Walter King Ltd.

Mr. Philip Henry Sugg retired from the Board of William Sugg & Co., Ltd., of Westminster, after 54 years' service in the firm founded by his grandfather. As Chairman for 33 years until 1954, he was responsible for a period of progress and expansion during which the company emerged as one of the foremost engineers and manufacturers of gas appliances in Great Britain.

Mr. T. C. L. Westbrook, C.B.E., was appointed Chairman of Sidney Flavel & Co., Ltd., and Mr. J. Allen and Mr. F. M. Rogers were appointed Joint Managing Directors.

Mr. Charles Cooper, Joint Managing Director and head of the gas and chemical engineering division of W. C. Holmes and Co., Ltd., of Huddersfield, retired in July after 38 years' service. He is, however retaining his association with the Company as technical consultant.



To celebrate Sir Harold Smith's 50 years' service in the gas industry, and his award of the Birmingham Medal, Mr. Ernest Atkinson, London Editor of the Birmingham Post and Mail, *gave a small luncheon party in his honour at the Reform Club in the summer. Here Mr. Atkinson presents Sir Harold with a cake modelled as a gasholder.*

The Year's Obituary

TOWARDS the end of the year a notable gas industry figure died. He was Colonel William Moncrieff Carr, C.B.E., T.D., who suffered a heart attack on December 1. He was 70.

Colonel Carr became Chairman of the North Western Gas Board at vesting date and was awarded the C.B.E. in the 1950 Birthday Honours. In that year he retired from the Board.

Mr. Alfred Henshall, Deputy Chairman of the North Western Gas Board, died on February 16, aged 54. He had played a vital part in setting up the Board's organisation. Mr. D. P. Welman, the Board's Chairman, said that Mr. Henshall's 'absolute and unshakeable integrity of purpose and his exceptional natural gentleness and personal modesty commanded an affection which is rare indeed.'

Mr. H. E. Ibbs, who was Chief Accountant of the former Gas Light and Coke Company for 21 years before his retirement in 1935, died on September 14 in his 84th year. His service, totalling 45 years, was all spent in the Gas Light Accountant's Department where he started as a junior clerk.

Mr. Clement Stredwick, Chief Accountant of the South Eastern Gas Board, died on November 30, aged 57. Mr. Stredwick, who started work as a junior clerk with the former South Metropolitan Gas Company in 1915, was appointed Chief Accountant when nationalisation took place.

Mr. William R. Armstrong, Manager and Engineer of Coleraine, Co. Londonderry, municipal gasworks for the ten-years up to his death on May 20, was one of the Ulster gas industry's best known and most enterprising younger personalities. He was aged 40. Until his illness two months before his death, Mr. Armstrong, in conjunction with the Ministry of Commerce, who were defraying the cost, was engaged in carrying out an important experiment—the conversion of Coleraine plant for producing gas from oil instead of coal.

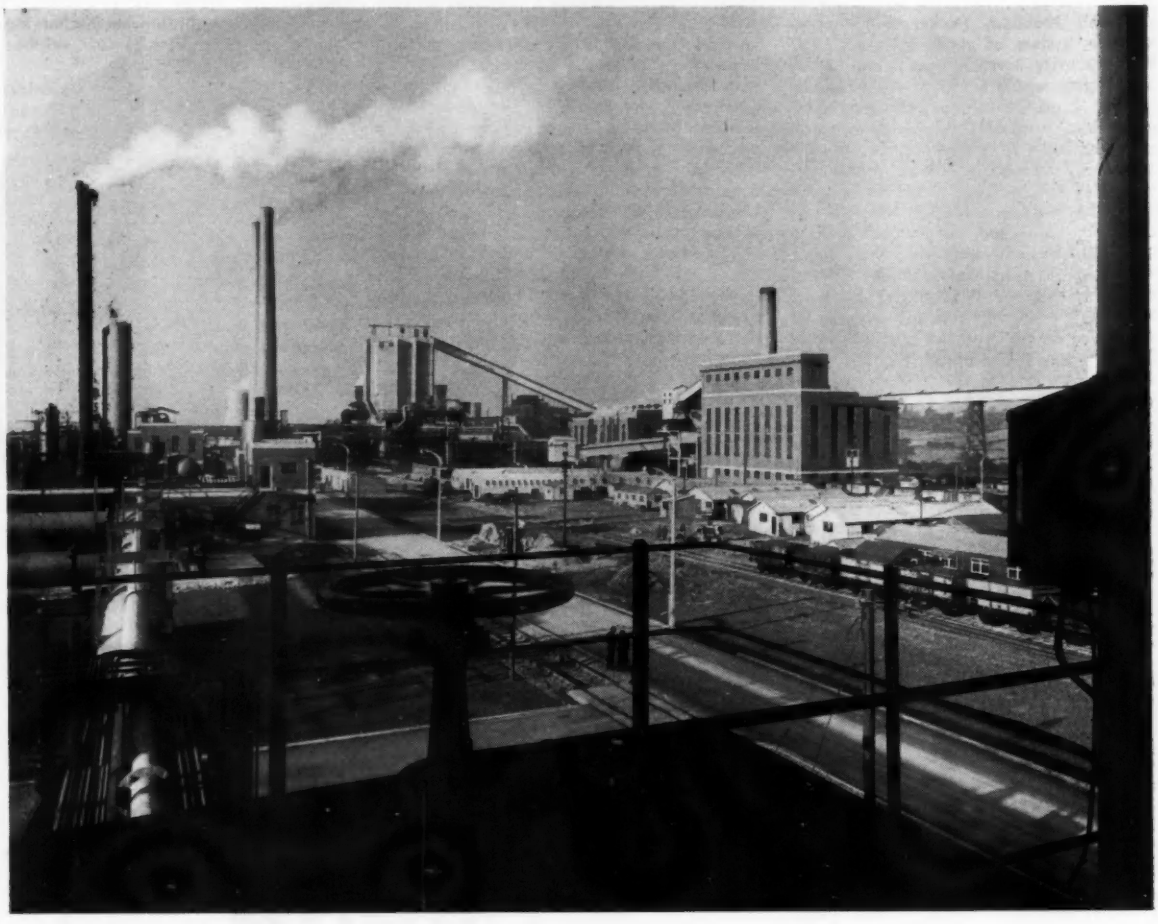
Mr. Charles Peter Bateman, Manager of the Bath sub-division of the S.W. Gas Board up to two years ago, and before that Managing Director of the Old Bath Gas Company, died in November, aged 56. He was a member of the Institution of Gas Engineers and of the Institute of Fuel.

Mr. John Bernard Walsh, Distribution Engineer, Leicester and Northants Division, East Midlands Gas Board, died on January 31, aged 48.

Mr. Arthur C. Cross, Deputy Editor of the 'GAS JOURNAL,' died on March 12, aged 65.

Mr. Horace T. Long, of Mill House, Salfords, died on June 14, aged 81 years. In pre-nationalisation days he was Secretary of the East Surrey Gas Company.

Mr. Thomas Charles Braddock, Managing Director of Thomas Braddock & Co., Ltd., gas meter manufacturers, died on December 31, and Mr. R. Lally, Engineer and Manager, Braintree and Bocking, Chelmsford Group, Eastern Gas Board, died on February 9, aged 63.



NEW PLANT IN 1956

THE Avenue coking plant of the East Midlands Division of the National Coal Board at Wiggerworth, near Chesterfield, was opened by Mr. Aubrey Jones, the Minister of Fuel and Power, on October 30. This plant is the most completely integrated and largest of the National Coal Board's carbonising plants, and is probably the largest plant of its kind in Europe.

NATIONAL COAL BOARD

Avenue Coking Plant, Chesterfield

When the coal industry was nationalised there were in the East Midlands Carbonisation Divisional area, five carbonisation plants, two of which were obsolete (these were Clay Cross and Blackwell) and three, Grassmore, Hardwick and Harworth, though obsolescent, were worth retaining. It was decided to build a completely new plant on a large enough scale for fuel economy and the complete recovery of all by-products, to integrate all power needs, and to make the three plants already in existence satellite plants which would be complimentary to the big central plant.

Washed coal is brought into the works by rail from nearby collieries.

The types of coal entering the coke works are 502, 602 and 702 classes and these will be effectively blended before being charged into the carbonising plant.

The coal is tipped into two overhead steel hoppers of 40 tons capacity, each standing on end arranged in two sections of nine with a total capacity of 20,000 tons. Each type of coal will be stored in its particular bunker or bunkers and be withdrawn as needed. Two 30-in. belt conveyors, each serving a line of nine bunkers receive the coal from beneath the bunker feeders. At the base of each bunker is a hoppered outlet, proceeding on to a system of belt conveyors capable of handling 200 tons per hour.

The coal then travels to the blending bunkers, where it is stored until needed. This is a large reinforced concrete building, consisting of 18 cylindrical compartments, 110 ft. high by 30 ft. in diameter fitted with a 36-in. by 72-in. Sherwen electrically operated vibrating feeder capable of handling 120 tons per hour. By this means the coal is fed on to the belt in regular layers, the number of layers depending on the number of bunkers from which coal is issuing. Each 30-in. belt feeds the coal to one of two British Jeffrey Diamond swing hammer pulverisers, which not only reduces the coal to 80% through an ¼-in. square mesh sieve, but also thoroughly mixes it and produces a reasonably homogeneous blend of constituent coals.

From the pulverisers the coal is transported by means of 42-in. belt conveyors on to a series of 36 conveyors to the coal bunker at the carbonising plant. Here it is received by a 48-in. rotary shuttle belt conveyor for distribution to the compartment required.

The carbonising plant consists of two batteries, each of 53 ovens of the

Woodall-Duckham Becker combination underjet system of carbonisation. The two batteries are contiguous and as is usual practice, are fed from one coal storage bunker and two charging cars. Space has been left for building a second complete unit of a similar size, with a means of connection to the coal conveyor system. The two batteries are designed to carbonise 2,175 tons of coal daily, containing 8 per cent. moisture, to produce 1,400 tons of coke and a total of 27 mill. cu.ft. of gas. The batteries may be fired either by coke oven gas when the underjet system is employed or by producer gas, generated in a mechanical producer plant.

Coal charging to the ovens is carried out by a charging car which is electrically propelled and has four steel hoppers, with a capacity of about 16 tons of coal.

Return to Direct Current

Although the operations of charging and pushing are modern conventional coke oven practice the machinery installed at this works has many individual characteristics. The first unusual point is that there has been a return to direct current electrical power for all oven operating machinery, including the coal charging car. The reason for this is the influence on its design by the Koppers Company of America, with whom, together with H. Koppers G.m.b.H. of Germany, the Woodall-Duckham Construction Co., Ltd., are in close touch. The most outstanding was a new type of self-sealing oven door, which seems to be proving really satisfactory, and provided it is given a minimum amount of maintenance and attention by the operators, it appears to be remaining gastight, and not suffering from a warping of the sealer strip, a common fault on many such doors.

The use of D.C. power facilitates the automatic speed control of the ram, and helps to safeguard the over-running of the oven by the ram head.

The operation of door latching by a motor controlled from the cabin, was worked out for D.C. power, which is more often met with in the U.S.A. than in this country.

The coke ovens are equipped with two ascension pipes to each oven and two collecting mains connected by a bridge main, as modern coke oven practice demands, to equalise the pull or pressure on the coal charges. In this bridge main are fitted two 45-in. 'Air-screw' fans to provide recirculation of the raw gas in alternate directions through the collecting mains and ovens with the object of controlling the oven top temperatures.

The primary condensers supplied by Whessoe Ltd. of Darlington are five in number and are or the 'Multipass' water tube type, working in parallel.

The gas is passed by the exhausters to the electro detarrers by Whessoe—W.D., and from the detarrers the gas passes to the primary naphthalene washers, designed and built by W. C. Holmes and Co. Ltd. of Huddersfield. The secondary condensers are two Whessoe 'Multipass' vertical water tube type, one in each stream.

The ammonia washers, also by W. C. Holmes and Co. Ltd., are arranged in a series of three for each gas stream, with provision for by-passing any one of them. The gas after the ammonia washers passes through a down flow type water separator to remove entrained moisture, on through the benzole scrubbers, the secondary naphthalene washers, identical to the primary washers, to the dilution plant, where it is diluted with producer gas from the producer gas plant to the declared value of 480 B.Th.U. per cu.ft. The diluted gas is passed to the dry purification plant, the purified gasholder and finally after metering to the compressors for distribution to the East Midlands Gas Board's trunk main.

The three exhausters are B.T.H. turbo-exhausters of axial inlet radial flow. they are steam driven. The compressing plant consists of four Waller gas compressors each capable of compressing 6 mill. cu.ft. per day at S.T.P. and delivering at a maximum pressure of 25 lb. per sq. in.

The purified gas is stored in a 500,000 cu.ft. spirally-guided holder by Newton Chambers, Ltd. From this holder gas is withdrawn by the compressors, but from this holder too gas is fed back to the ovens for underfiring. It is most unusual for purified gas to be used for under-firing a coke oven battery, but the Carbonisation Division decided to do so, for it wished to make a contribution to the shortage of sulphuric acid, and, secondly, it was anxious not to add to the atmospheric pollution by discharging relatively large quantities of sulphur dioxide into the air.

The tar plant, supplied by Chemical Engineering Wiltons, Ltd., is a continuous plant with an eventual capacity of 400 tons per 24 hours.

All steam for power generation is raised in Babcock C.T.M. type boilers burning breeze. There are three such boilers installed, each rated at 60,000 lb. of steam per hour at 465 lb. per sq. in. superheated to 640°F., when fired with coke breeze of a net C.V. of 9,200 B.Th.U. per lb., a moisture content of 22% and an ash content of 11%. These boilers are the biggest of their kind in the United Kingdom. To ensure that the breeze is successfully burned, a form of recirculation of flue gas is practised, whereby a fan provides a slight suction at the front end of the stoker, which draws warm gases from the furnace on to the fuel entering the furnace.

Steam passes to the power house in an adjacent building, where it drives two turbines directly coupled through reduction gear to alternators. These turbines, which are pass-out and condensing, are each designed for a power generation of 5,000 kW with steam at 450 lb. per sq. in., superheated to 625°F. passing out 95,000 lb. of steam per hour at 120-130 lb. per sq. in. They are fitted with condensers suitable for 40,000 lb. of steam per hour at 28 in. Hg. vacuum, allowing 3,000 kW to be generated without pass-out.

SCOTTISH

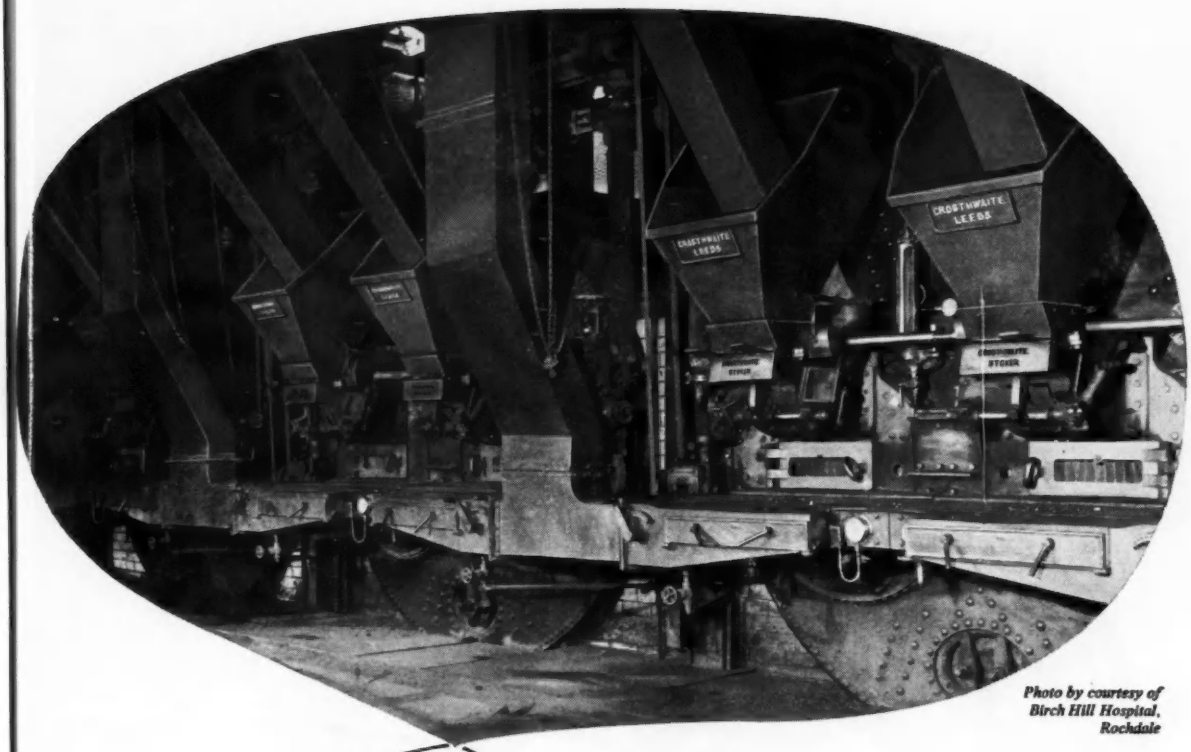
Granton, Edinburgh

THE new extension of the Granton gasworks at Edinburgh was the subject of an inspection on April 23. Sir Andrew Clow, who was then Chairman of the Scottish Gas Board, had invited the Lord Provost of Edinburgh, the City Councillors and representatives of the Midlothian County Council, Provosts from the Lothian towns and representatives of Government departments, and the contracting firms which had carried out the work, to accompany him on an official tour of the gasworks. The extensions which the official party came to see were two benches each of 28 82 in. lambent heated retorts by the Woodall-Duckham Construction Co., Ltd. These benches would increase the output by 10 mill. cu.ft. of gas per day.

Included with this extension of carbonising capacity was up-to-date coal and coke handling plant, mechanical producers and waste heat boilers. The original Granton works had been laid out by the late Mr. W. R. Herring in the early part of the century on a 'green field' site, and thanks to his foresight and engineering ability the 110 acres which had been purchased from the Buccleuch Estate has always proved adequate for plant extensions which, together with the one under review, has raised the carbonising capacity of the original Edinburgh and Leith Commissions' works of 10 mill. cu.ft. per day capacity to the present output of 35 mill. cu.ft. per day.

The layout of the retort houses is substantially the same as when Herring originally planned it, though it has been necessary to make some alterations to house the lip bucket elevator for transport of the coal from the ground level to handling plant to the new retort house bunkers. These alterations and additions have been carefully designed both structurally and architecturally to harmonise with the original façade. So much retort house space was in fact available that the new plant could be housed without building a new retort house.

This works was one of the earliest to have included retorts and these were in use until the late 1920's, when the first Woodall-Duckham vertical retorts were installed to form benches A and B, each of 44 76 in. retorts. It was necessary to build a new retort house for these benches, and care was taken that it should be in keeping with the existing buildings. Later extensions were C and D benches each of 20 103 in. Woodall-Duckham retorts. The total capacity of the carbonising plant by the end of the war now stood at 16 mill. cu.ft. Finally F and G benches were built. They each



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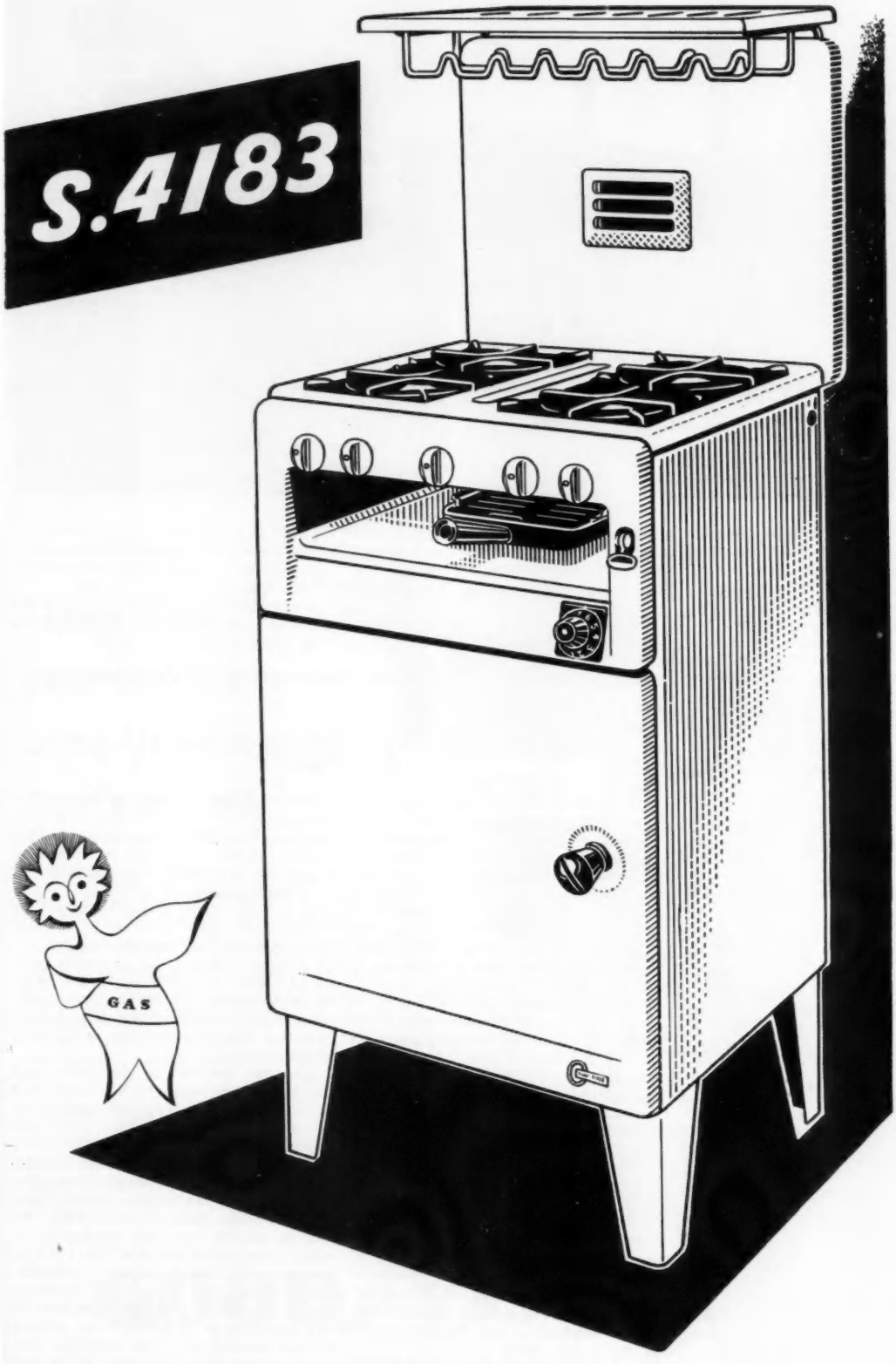

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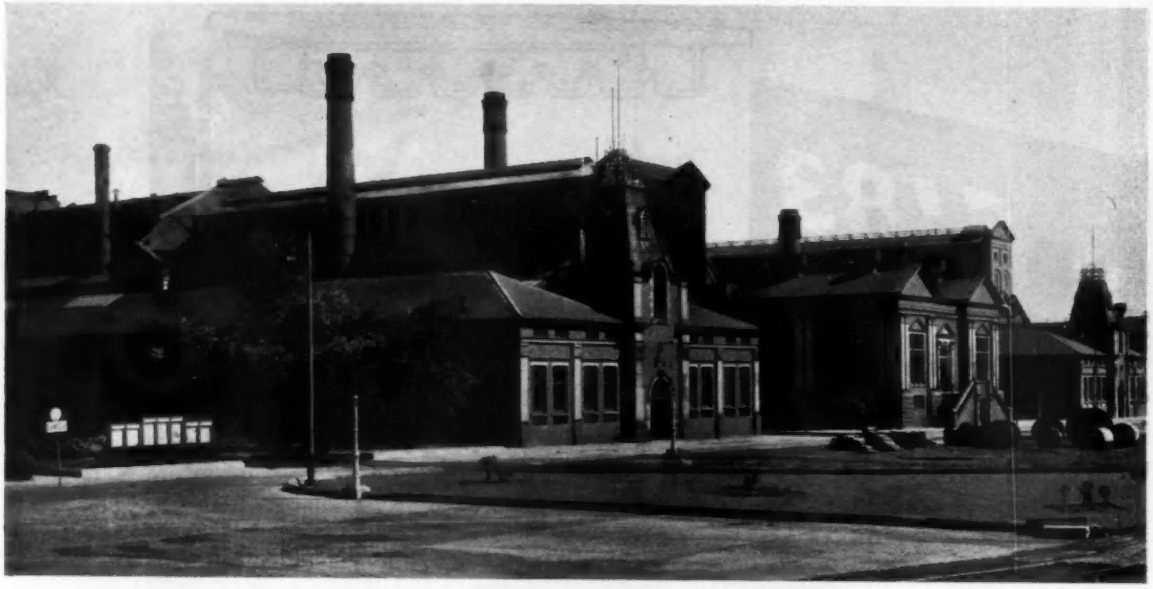

consist of 28 82 in. lambent heated retorts and add 10 mill. cu.ft. per day to the carbonising capacity. The provision of producer gas for diluent and an up-to-date carburetted water gas plant completes the gas making capacity.

It is the aim of the Scottish Gas Board to carry out a large integration scheme throughout the Lothians and Granton works has become the centre of gas manufacture for this integrated area. Coal can be brought into the works by sea up the Firth of Forth or by rail from the Lothian coalfields or from the north of England.

The works is equipped with modern coal handling equipment, which includes two Strachan and Henshaw electrically operated coal tipplers each of 100 tons per hour capacity feeding into 25 ton capacity bunkers from which the coal is transported by way of crushers and a 70 in. Boxmag suspension magnet by lip-bucket elevator, to a belt conveyor system for distribution to the retort house bunkers. The whole elevator and conveyor systems are duplicated in case of breakdown. This lip bucket elevator system can also be used for transporting coke. Run of retort can by this means be taken to the retort house bunkers for retort filling after scurfing, or taken to the producer bunkers. All surplus coke not wanted for either of these purposes will go to the screening plant for sizing and loading into wagons.

Should coke be needed at A and B retort benches, this can be done by reversing the run of retort coke belt under the retort benches and taking the coke out at the opposite end of the house, from which point it will be transported by drag bar conveyor to the Edinburgh No. 1 retort house in which the A and B benches are situated. The new retort benches are fired by five Humphreys and Glasgow mechanical producers. Four are normally in operation and one is stand-by. In addition to supplying gas for retort firing, 4.2 mill. cu.ft. per day are available from this plant for dilution purposes. Each producer has its own cyclone dust extractor which will extract 90% of the dust out of the gas before entering the setting. Blast is provided by centrifugal air blowers, the pressure of which is controlled by an Askania governor.

The charging of the producers is carried out by a movable hopper electrically driven and suspended from a beam. Three waste heat boilers of the horizontal flue type with induced draught are provided. Each can deal with the waste heat from a bench of retorts.

SOUTH EASTERN

Dover

PROGRESS is being made in the reconstruction of the gasworks at Dover. Half the new plant has been commissioned, which has made it possible for the old plant to be shut down and dismantled. The second half of the new plant has been begun and at the moment the retort house girder work for the last section of the retort settings has been erected. When the plant is complete, it will be the only gas-making plant in the Dover Division except Canterbury. The first two retort benches were built, together with the coal handling plant, to take over gas-making from the old retort installation, but arrangements were made that the old coal gas and the C.W.G. plants could go on gas making while the first part of the construction was under way, without interfering with the construction of new ancillary plant and purifiers.

The old plant to be demolished included a holder, the below-ground tank of which has been lined with reinforced concrete and divided up into sections to become the tar and liquor storage for the new carbonising plant. The roof of this storage tank is being used to carry the new condensing and washing plants and the C.A.L. plant.

To the east of the new retort house area there is a conveniently placed site, served by railway sidings, on which the new coke handling plant is going to be built. In order to keep the old handling plant working for as long as possible while the old retort house was in use, the new plant has had to be constructed in two stages. This will be completed when the demolitions are complete. It has been possible to build new engine and power houses to the south of the retort house now that the old plant situated there has been cleared away.

A new C.W.G. plant complete with relief holder and oil storage tank is being built on some land that had been purchased to the west of the No. 3 gasholder. On this site, too, is a water cooling tower.

The new purifiers of the tower type are being constructed by W. C. Holmes & Co., Ltd., and will have a capacity of 18 mill. cu.ft. a day. This plant will include the necessary stocking tower, mechanical handling plant, a Goliath crane and the necessary space for storing oxide. Before construction could begin on the purifier plant, it was necessary to call in experts on soil mechanics to explore the site by means of trial borings. It was found that there was a considerable amount of excavation necessary before solid ground was exposed, due to the quantities of backfiller from various earlier excavations. This particular site appeared to have been part of an old brickfield. In other parts where it was proposed to erect new plant it was necessary to strengthen the ground by pile driving

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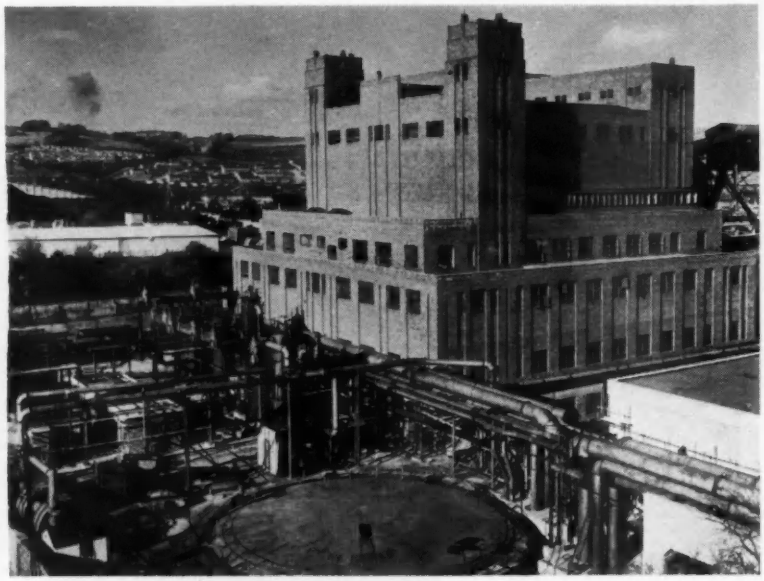
Since deliveries of coal to the works will amount to about 1,000 tons per day when all the new plant is completed, it was necessary to modify the sidings to ensure that this could be done without difficulty. As things stood, it was only possible to bring in 15 wagons at once, because of the limits imposed by the turnout from the up-line connected only with two short sidings in the south-east corner of the works. British Railways were approached to provide a turnout from the main down line which would give direct access to the main siding area and circuit from Chislet Colliery and the docks. By this means full wagons can be put off by main line engines right in the works where they will be picked up by gas board diesel locomotives. Full wagons of coke can then be picked up and taken on to the main marshalling sidings by British Railways engines. Full wagons of coal are handled by electrically operated weighbridge tipplers, which can tip wagons up to 24½ tons capacity. The coal passes to 30 ton bunkers and is transported by a 30 in. conveyor belt to a 30 in. by 30 in. Jeffrey type roll crusher of 125 tons per hour capacity. From the breaker the coal passes to a gravity bucket conveyor where it can either be discharged at top level on to conveyors delivering to retort house bunkers (72 hours stock) or to a 30 in. conveyor which can deliver at 125 tons per hour to stock.

Carbonising Plant

When completed, the carbonising plant will consist of four benches each of 24 82 in. lambent heated continuous vertical retorts by the Woodall-Duckham Construction Co., Ltd., and two benches each of 12 such retorts, housed in a steel framed brick panelled building of modern design. The benches are arranged in two parallel lines, and each is built as a unit complete with coal and coke conveyors, waste heat boilers and step grate producers, which enables any bench to be let down for repairs or reconstruction without affecting another bench. This arrangement allows the construction of two benches to be carried on while the old horizontal plant is still gas making and in turn makes it possible for the second half of the new plant to be built independently of the first half which will by then have taken over gas making. Each unit of 24 retorts will have a capacity of 2 mill. cu.ft. per day using Chislet coal, 2.4 mill. cu.ft. per day with Durham and 2.96 mill. cu.ft. per day with Yorkshire coals.

The new C.W.G. plant has been installed in a steel framed, brick panelled building, erected on a site reinforced by 96 Franki compressed pipes. The plant consists of two fully automatically operated Humphreys & Glasgow sets, each complete with its own waste heat boiler and ancillary plant, together with coke bunker and messroom. Each set has a capacity of 2.2 mill. cu.ft. per day. Provision has been made to use heavy oil. A relief holder has been erected on a terrace to the south of the plant, which it shares with an oil storage tank of 150,000 gal. capacity. The holder which is spirally guided has a capacity of 120,000 cu.ft.



First half of the vertical retort house viewed from the south west. The washing plant is to the west of the building.

There are three electrically driven Holmes Connersville exhausters, two with a capacity of six mill. cu.ft. a day and one with 12 mill. cu.ft. per day. In addition there are two 2.5 mill. cu.ft. per day C.W.G. exhausters, though one of the six mill. cu.ft. per day exhausters may be made available for C.W.G. Four Bryan Donkin electrically driven compressors are being installed, two with a capacity of 190,000 cu.ft. per hour and two of 300,000 cu.ft. per hour, at 20 to 25 lb. per sq. in.

The power plant consists of two L.D.C. 600 k.W. 750 k.V.A. 415 volt 50 cycle alternators at 300 r.p.m. each directly coupled to a two-crank compound condensing Bellis and Morcom engine, the necessary switchgear, and rectifiers for D.C. current for the compressor drive. Power may also be taken from the grid.

SOUTH WESTERN

Exeter

BY 1951, the South Western Gas Board had decided that the Exeter works was to become one of the main gas-producing works in the Southern Division and it was proposed to increase the capacity, by building an entirely new carbonising plant, to 6 mill. cu.ft. per day and later to 9 mill. cu.ft. per day utilising thermal integration.

The coal carbonised at the Exeter works is all from South Yorkshire from collieries at Houghton, Manvers and Thurcroft and is brought into the works by rail. Since the coal is railborne railway sidings have been laid out on the western side of the works so that full wagons of coal can be easily put off from the British Railways siding, or full wagons of coke can be picked up without difficulty and despatched by the same means. The sidings consist of five tracks laid out in 95 lb. bull head rail by T. W. Ward, Ltd., of Sheffield. Full wagons of coal are brought down to the tippler which is a 35-ton Strachan and Henshaw, and will handle 12 wagons an hour over eight hours, with a maximum of 300 tons of coal tipped per hour.

From the tippler the coal passes into a 30-ton reinforced concrete hopper and is taken by belt conveyor to the retort house bunkers. The drive to the coal breaker is through a Vulcan Sinclair fluid drive coupling. Between the breaker and the retort house, a belt conveyor comes in from the coke screening plant bringing coke for producer fuel or other retort house use. Coal and coke on being brought into the retort house are distributed among their respective bunkers by reversible shuttle conveyors, there being two such belts throughout the retort house. The capacity of the coal and coke bunkers is 60 hours.

There is provision in the retort house for three benches each of 24 82-in. Lambent-heated retorts by the Woodall Duckham Construction Co., Ltd. At the present moment only two benches have been built, though the girder work is in place for the third. Of the first two benches, one has been gas making for

about six months and the second should have been commissioned and making gas by January 1, 1957. The present production of 3 mill. cu.ft. per day should then be doubled. The retort house is a long narrow building about 275 ft. long by about 80 ft. wide, and about 100 ft. high to the tops of the chimneys, built of brick and well lit by adequate windows and artificial light in dust-proof fittings.

The retort benches are of the standard Woodall-Duckham design. Built-in (step grate) producers supply producer gas to the settings. These producers are designed to operate on forced draught beneath the grate supplied by electric fans. A Reavell-Askania regulator controls the pressure of blast according to the temperature of the producer fire, and a device is provided to keep the blast saturation temperature at 49°C., and a constant depth of fire.

Waste Heat Boilers

Three waste heat boilers are provided for two benches, and a fourth will be built when the third bench is completed. Each of these boilers is capable of generating 7,500 lb. of steam per hour at 250 lb. per sq. in. superheated to 650°F., which passes direct to the turbo alternator in the power house. These boilers are provided with electrically driven fans, while the superheater tubes are protected by an Arca regulator. All boiler feed water undergoes treatment in a fully automatic base exchange water softener, of sufficient capacity to provide treated water for three boilers and a big enough surplus for any solid fuel boiler that might be installed in the future.

The Power House

The power house is situated in the open space between the retort house and the gasholders and contains all the major electrical switchgear, turbo alternators and transformers.

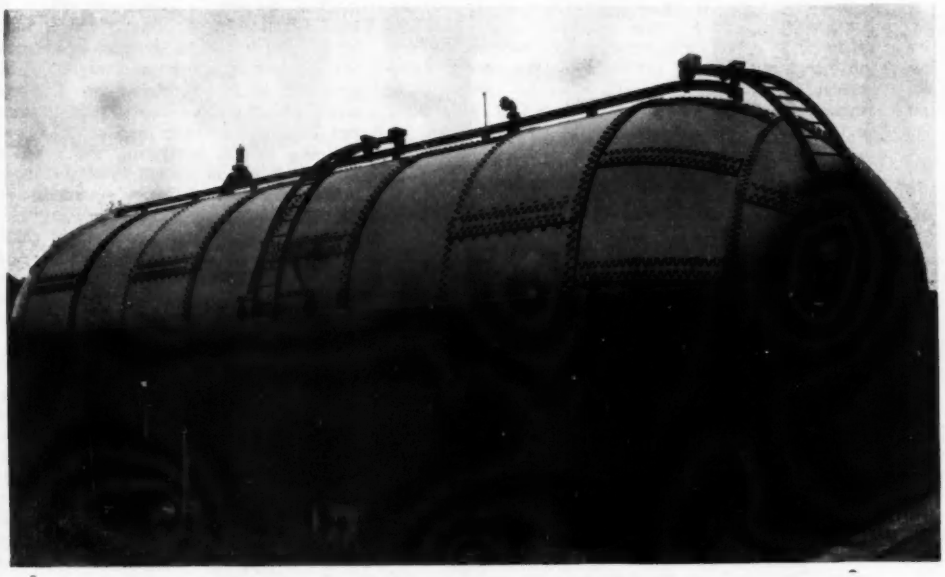
The steam from the waste heat boilers in the retort house is brought into the power house where it is used to drive a W. H. Allen & Co. Ltd.'s pass-out and condensing turbine directly coupled through a speed reducing gear to a Lancashire Dynamo and Crypto AG 39 V4 alternator, and its associated excitors, with an output of 750 kW. at 3,300 V. 3 phase and 50 cycles and a power factor of .8. The turbine, which receives steam at 240 lb. per sq. in. is fitted with an automatic nozzle control to enable it to meet the works demand for process steam whatever the demand for electricity may be. Part of the steam from the turbine is passed out at 20 lb. per sq. in. to the retort house and as process steam, and the remainder is condensed. The condensate is returned to the boiler feed water tank. The turbine is fitted with a closed circuit air cooler which reduces the noise in the power house. The air circuit includes a water cooled jacket for keeping the air temperature as constant as possible. Provision has been made in the turbine room for the installation of a second turbine on completion of the third retort bench.

An alternative supply of electric power can be received from the grid, and its installation is such that power may be imported or exported at will to or from the power house. Export of power, which is recorded, can be at any time when it can be spared but the price varies with the period of the day. Between 7 a.m. and 7 p.m. the grid will buy exported power at ¼d. a unit, but between 7 p.m. and 7 a.m. the price falls to .3d. per unit, the prices being based on fuel at 50s. per ton.

The ancillary plant is by Whessoe Ltd. of Darlington and is designed to deal with a make of gas of 6 mill. cu.ft. per day with an easy extension to 9 mill. cu.ft. per day and allowing for a maximum winter load of 12 mill. cu.ft. From the condensers the gas passes to a Whessoe Woodall Duckham Electro-detarrer of 9 mill. cu.ft. per day capacity, and thence to a 12 mill. cu.ft. per day ammonia scrubber, of two units.

The Exhausters

The two exhausters, one standby, are three stage turbo exhausters by Bryan Donkin, running at 2,850 r.p.m. with a capacity of 9 mill. cu.ft. per day, at a pressure differential of 60 in. W.G. They are driven through a scoop controlled fluid coupling by 120 H.P. 3,300 V. totally enclosed, flameproof corecooled squirrel cage, direct on line-induction motors by Lancashire Dynamo and Crypto Ltd., complete with ½ H.P. independently driven pressurising units. The two air blowers, also by Bryan Donkin (one standby), have a capacity of 20,000 cu.ft. per hour,



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Interior of the power house showing the turbo-alternator and main switchboard.

for a daily make of 9 mill. cu.ft., and are controlled automatically by the special air proportioning equipment.

The combined purifying capacity is 7 mill. cu.ft. per day, which is big enough for the present output from the retort house of 3 to 6 mill. cu.ft. per day.

No future oxide purifiers will be built until it has been decided to complete the third bench of retorts.

From the purifiers the gas passes through two 14 in. by 42 in. Holmes-Connersville meters, with a capacity of 3.6 mill. cu.ft. per day each, on its way to the gasholders. Both station meters are in the open, without the protection of a meter house. There are three gasholders. No. 1 is a 2 mill. cu.ft. spirally-guided holder built by R. Dempster & Co., Ltd., in 1950-51, No. 2 is a 2 mill. cu.ft. spirally-guided holder built by Claytons of Leeds in 1947, and No. 3 is an old column-guided holder of 750,000 cu.ft. capacity built by Westwood & Wright in 1898 and is used as a water gas relief holder.

The compressor and booster plant is at present steam driven from steam raised by a Lancashire boiler burning No. 5 coke (dedusted coarse breeze). The compressors are two Beliss and Morcom 125,000 cu.ft. per hour reciprocating compressors to be converted to electric drive by two L.D.C. AR 46q18 forced ventilation E.H.T. slipring induction motors of 210 H.P. at a full load speed of 324 r.p.m. Later a 200,000 cu.ft. diesel-driven reciprocating compressor will be installed.

Run of retort coke is brought out of the retort house on a 30 in. coke belt, transferred to another belt and taken to the top of the coke screening plant. It can either be taken out to the stocking ground by a reversible belt conveyor and stocked by shuttle conveyors where a stock of five to six thousand tons may be held, or it may be screened and stored for despatch in rail or road wagons. The screening plant consists of two lines of screens, each with a capacity of 50 tons per hour and in each line are a Pegson scalping screen, producing 1A coke, a Pegson debreezer screen, and the main installation of 'Consort' screens by W. J. Jenkins & Co., Ltd. This arrangement gives a total of five sizes of coke, namely, 1A, 1, 2, 3, 5, the latter being a coarse dedusted breeze below ½ in. The hopper capacity is 1,000 tons of graded coke and 50 tons of retort coke.

NORTH WESTERN

Denton

THE new Denton gasworks which came into half-production early in September, is one of the most modern works in the North West of England.

The original conception of the new works dates back to before nationalisation when the undertaking was part of the North Cheshire Gas Company and work was actually started in 1947. It involved the extension of the site from about 3 acres to 37 acres, the extra 34 acres being all agricultural land. The site of the new works may be looked upon therefore as a 'green field' site, an advantage which allows the designers full scope for the best possible layout and enables them to take full advantage of the most modern equipment for coal and coke handling, and railway siding layout, as well as the most up-to-date coal carbonisation system and the best means of heat conservation at all points.

A good deal of preliminary civil engineering work was necessary to convert the site from a slope from east to west into a terraced formation.

There are two tipplers of 150 tons per hour in duplicate and they handle trains of wagons on tracks on each side of the coal unloading sidings. Wagons up to 24 tons capacity can be handled.

From the tippler pit the coal is carried by belt conveyor up to an intermediate conveyor station (No. 1 junction tower). From here there are two alternative routes for the coal. It can either be ejected at this point and be put into stock, or it can be transferred to a second belt conveyor and taken into the retort house bunkers.

As these belt conveyors can and do carry coke as well as coal, a control room has been set up in this junction tower which includes a mimic diagram. By this means the operator can control the transport of coal, coke or breeze by this belt system as well as decide whether to stock coal, or to transfer it to the retort house, and in what part of the coal stocking area to stock it.

The coke stocking ground is roughly semi-circular in shape with an area of 17,557 sq. yd.

By means of a Henderson scraper which is actuated by three haulages, coal can be transferred to any part of the stocking ground or to the base of the tower. Here, there is a ramp behind

which there is an entrance to a conveyor belt system connecting with the main system of transport of coal from the tipplers to the retort house. By drawing in coal from the stocking yard up over the ramp, coal can be easily recovered from stock, and by drawing coal which is being rejected from the tower and accumulating there outwards, it can be put into stock equally easily. This operation is under the complete control of the operator in the tower. Coal can be stocked or reclaimed at the rate of 100 tons per hour.

A total of 46,000 tons of coal can be stocked.

Carbonising Plant

The producer gas plant consists of eight Wellman Smith-Owen Galusha mechanical producers of 10 ft. diameter and designed to use graded coke ¼ in. to $\frac{3}{16}$ in., or in other words, dedusted coarse breeze. The control of the producer is automatic, and the ash from the producer is continuously extracted.

The carbonising plant consists of 160 50-in. West's continuous vertical retorts in four benches with five beds of eight retorts in each bench. The arrangement of the retort benches is most unusual. They are laid out in four parallel lines, at right angles to the length of the building. Each bench can be operated completely independently, and has its own producer gas connections and waste heat boiler arrangements.

There are seven waste heat boilers, one for each bench with three standbys, and a producer gas main bringing gas direct from the producer gas plant to the waste heat boilers for boosting the supply of steam if wanted. The generator house contains three sets of W. H. Allen pass-out turbines directly coupled to Mather & Platt alternators of 1,200 kilowatt capacity at 3.3 kV, 3 phase, 50 cycles A.C. Normally two will be in use with one standby.

Each steam turbine consumes 18,500 lb. of steam per hour at 225 lb. per sq. in. passing out 12,000 lb. at 15 lb. per sq. in. Any power generated in excess of what is needed in the works between 8 a.m. and 5 p.m. is exported to the grid at ¼d. per unit.

The waste heat boilers, by Spencer Bonecourt & Clarkson, are fitted with Weir de-aerator feed water heaters and economisers by Senior Economisers. Davidson sirocco fans driven by 36 b.h.p. electric motors are fitted to each boiler. Steam is to be generated at 265 lb. per sq. in., though the boilers are designed for a pressure of 280 lb. per sq. in. The pressure at the turbines will be 255 lb. per sq. in. When four boilers are in operation 40,000 lb. of steam per hour will be generated and superheated to 715°F. The direct producer gas connection mentioned earlier on (the augmentation flue) will, when in operation, be able to add a further 10,000 lb. of steam per hour. The boilers are fitted with economisers into which the feed water enters at 190°F. and leaves at a temperature 6°F. below the saturated steam temperature. The boilers are also fitted with de-aerators and a continuous blow down system.

Each steam turbine consumes 18,500 lb. of steam per hour at 225 lb. per sq. in. passing out 12,000 lb. at 15 lb. per sq. in. Under conditions of maximum steam consumption as much as 15,000 lb. of pass-out steam at 18 lb. per sq. in. can be made available per turbine. All condensate water is collected and returned via a condensate tank at 110°F. to the de-aerator at 190°F. and thence to the economisers. Feed water heaters by G. & J. Weir are fitted as a standby.

The superheaters are separated from the boilers and by partially by-passing, and the degree of superheat can be effectively controlled.

Pass-out Steam

The bulk of the pass-out steam at 15 lb. per sq. in. goes to the ammonia effluent treatment plant and the remainder is used at the purifier plant, for retort steaming and for the heating of all buildings.

The two gas streams leave the retort house and pass to two Balfour V tube water-cooled condensers each with a capacity of 6 mill. cu.ft. per day on their way to the exhauster house. There are three exhausters, Holmes—Connersville 16 in. by 39 in., driven by B.T.H. Electric Motors. Each exhauster has a capacity of 6 mill. cu.ft. per day and normally two will be working and one standby.

The electric detarrers, four in number, are by W. C. Holmes, Ltd., of Huddersfield and are placed on the roof of a rein-

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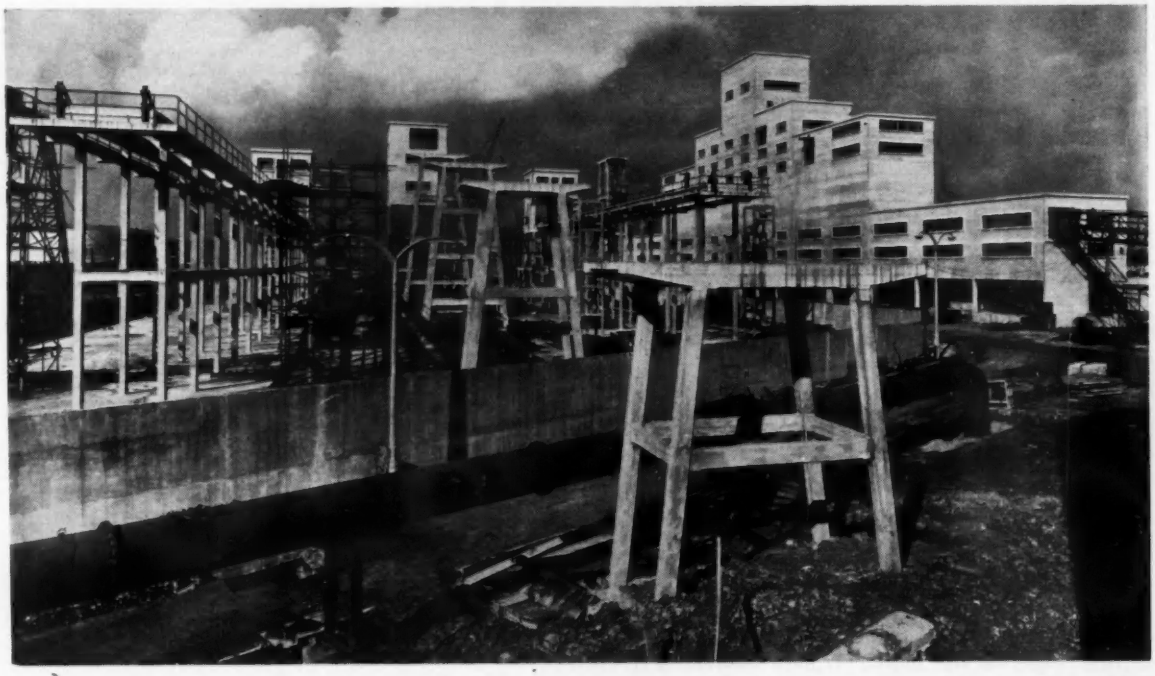

The reinforced concrete structure for carrying the coke stocking gantry. On the right background is the coke screening plant.

forced concrete structure housing pumps for the transfer of tar and liquor. The two ammonia scrubbers also by Holmes are provided one for each stream. Each consists of two sections of 6 bays each with a rated capacity of 275,000 cu.ft. per hour or 6.6 mill. cu.ft. per day and are complete with the necessary liquor pumps. From the ammonia scrubbers the gas passes to the tower purifiers, again by Holmes. The installation consists of six towers and two stocking towers and one standby tower. The purifier capacity is 12 mill. cu.ft. per day.

At the outlet of the purifiers, the coal gas passed to the benzole washers by W. C. Holmes & Co., Ltd. The capacity of each of the two washers is 6.1 mill. cu.ft. per day, and the estimated daily make of crude benzole is 1,680 gal. From here the gas passes to the new 2 mill. cu.ft. gasholder by Clayton Son & Co., Ltd., of Leeds.

The four Bryan Donkin compressors directly coupled through a reduction gear to Lawrence Scott electric motors operating on the 3.3 kV supply are of the twin reciprocating type and consist of two of five mill. cu.ft. per day, one of six mill. cu.ft. per day, and one of four mill. cu.ft. per day capacity.

Coke Handling

The coke screening plant is by W. J. Jenkins & Co., Ltd., and Pegson, Ltd., and is housed in a well designed functional building in reinforced concrete, on the east side of the works near the coal tipplers.

There are four lines of screens installed, each rated at 40 tons per hour, which makes provision for screening coke direct from the retort house or from stock. Coke is reclaimed from stock by mechanical shovel which dumps it at the base of a skip hoist installed on the west side of the screening plant. This hoist, by Strachan & Henshaw, Ltd., delivers the coke to the top of the building on to an appropriate screen. Provision is made for bagging coke and loading road or railway wagons with bulk loads. Two travelling debreezers are installed, one for each form of transport.

The capacity of the coke storage bunkers is 1,000 tons.

SOUTH WESTERN

Stapleton Road, Bristol

MAJOR extensions have been carried out at the South Western Gas Board's Stapleton Road gasworks at Bristol. The existing plant which has been in production since 1913 was an installation of Woodall-Duckham continuous vertical retorts with an output of 5.8 mill. cu.ft. per day. The new plant consists of two sets of two benches by West's Gas Improvement Co., Ltd., of Manchester, with a gas making capacity of 10 mill. cu.ft. per day.

The original project had been planned by the Bristol Gas Company before nationalisation as the demand for gas in Bristol had made the replacement of the old horizontal retort setting of 3.5 mill. cu.ft. per day essential, though in its original form the extension would only have amounted to a 6 mill. cu.ft. per day plant. With the nationalisation of the industry and the decision to integrate its area, the South Western Gas Board decided to make the Stapleton Road Works a base load station and therefore to increase the capacity of the new plant to 10 mill. cu.ft. per day.

The coal carbonised at this works amounts in total to about 1,000 tons per day, 350 tons by the old plant and 650 tons by the new, and is brought from the South Yorkshire, Midland, Somerset and Welsh coalfields with a small proportion of imported coal from Europe and America. As is natural the inland coal is brought entirely by rail while the seaborne coal is unloaded into road wagons at Canons March works on the river Avon, and brought into the works by road. Two Rotaside tipplers by Strachan and Henshaw are capable of unloading 20 wagons an hour with a maximum capacity of something like 800 tons into two grabbing pits of 380 tons capacity, fitted with removable covers. A telpher transport system is provided for transferring the coal from these pits to the main stocking ground which can store 30,000 tons. Across the stocking area is a transporter bridge with a span of 120 ft. over which two five ton telpher machines can travel. Each telpher machine is fitted with a two ton mechanical grab which enables it to recover coal from any part of the stocking area.

To transport coal direct from the tipplers to the retort house bunkers, two lines of 36 in. belt conveyors carry coal from the grabbing pits to the bottom stand of one of two lipped bucket elevators, which elevates it to a conveyor system at the top of the retort house

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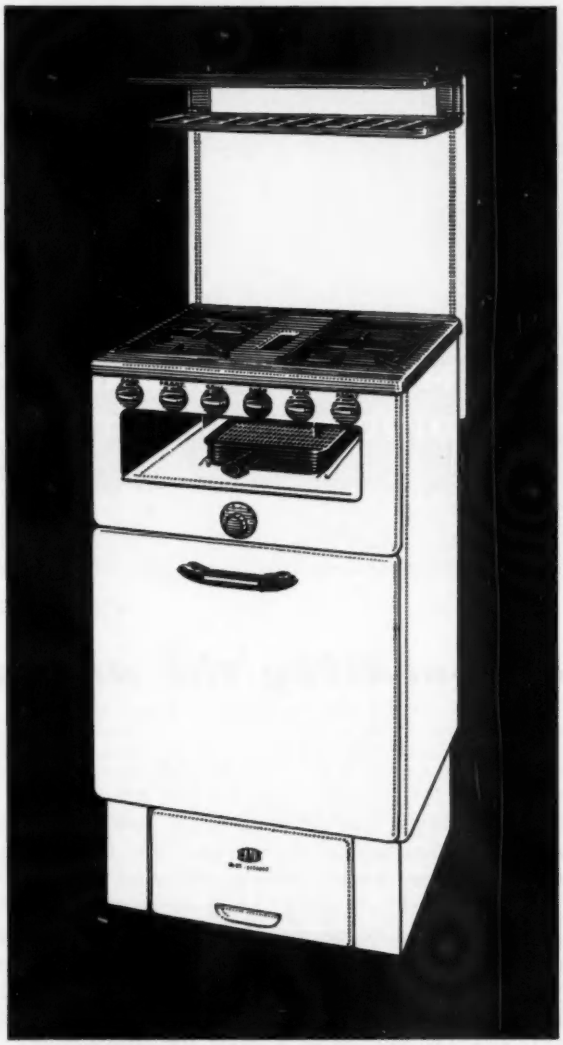

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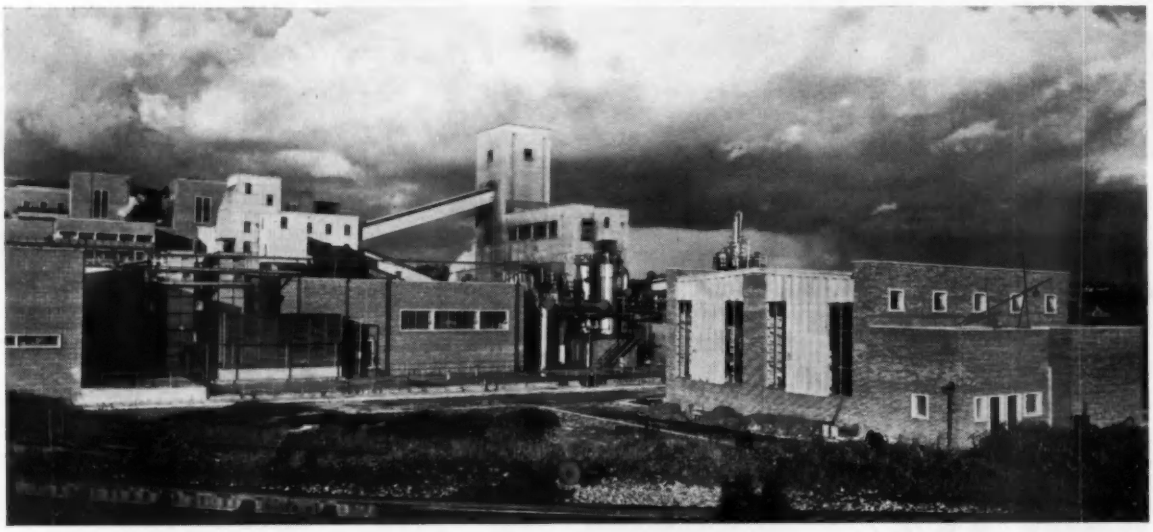

for filling the main retort house bunkers. Coke for producer fuel, or retort filling after scurfing can also be carried by this elevator and stored in the appropriate bunker.

Carbonising Plant

The carbonising plant consists of 128 Glover West continuous vertical retorts of 50 in. major axis, expanding to 56 in. at the base, grouped in four separate benches of four settings each of eight retorts. Each bench is divided by an air cooled wall into two separate divisions each of two settings.

The settings are fired by producer gas from ten West's 'Hot Gas' mechanical producers, which are arranged in two groups of five, each group connected by a common main. Four producers are sufficient to fire two benches, with a stand-by in each group. Waste heat from the settings is recovered in Spencer Bonecourt horizontal induced draught boilers, and steam is raised at 250 lb. per sq. in. and superheated to 600°F. Steam from these boilers is taken to the power house where it drives an 1,800 kW. pass-out turbine, exhausting steam at 20 lb. per sq. in.

Except for the turbo exhausters, the boiler feed pumps and the turbo alternator, all prime movers on the works are electric, with diesel stand-bys for the liquid purification plant, and two steam driven producer air blast fans. Electricity is generated at 3,300 volts and distributed to sub-stations on the works where it is converted to 415 volts for works use. Ancillary plant consists of two primary coolers of 12 mill. cu.ft. per day capacity, secondary coolers of the same capacity, two electro-detarrers in parallel, and three 'Multifilm' static washers in series, each of four bays. This plant is all manufactured by W. C. Holmes & Co., Ltd. The two exhausters are B.T.H. single stage centrifugal type, directly coupled to 150 H.P. back pressure steam turbines, running at 6,500 r.p.m. each with a capacity of 12 mill. cu.ft. per day. After leaving the ammonia washers, the gas passes to the liquid purification plant, where the gas is purified by the 'Manchester' process. The gas is stored on the works in three holders, the largest of which is six mill. cu.ft., considered to be the largest all-welded holder in Europe. Coke is discharged from the retort settings by travelling chutes into one of two 36 in. belt conveyors, capable of handling 45 tons per hour. The run of retort coke is transported by a very flexible coke handling system by which it can be taken to the coke grading plant, the graded coke stockpile or back to the retort house. In the grading plant, electrically driven Zimmer type screens grade the coke into whatever sizes are needed. All liquor produced on the works is treated by a Simon-Carves plant and concentrated to a 30% ammonia solution. The plant can deal with 1,800 gal. per hour. Two Bryan Donkin compressors, each with a capacity of 200,000 cu.ft. per hour, have been installed; one is driven by a Blackstone 400 h.p. eight cylinder engine and the other by a 400 h.p. variable speed L.D.C. motor. The works are complete with gas testing room and plant control laboratory.

EAST MIDLANDS

Car House, Rotherham

SINCE the large-scale development of the industrial gas load in Sheffield, the difference in consumption between summer and winter has been much less than in those districts where the domestic load is still predominant. On the other hand, the gas consumption at the week-end is much less than in the other five days of the week. In spite of the apparent advantages of the good annual load factor, the hard core of coke oven gas which is received in Sheffield makes it necessary to have plant with the greatest possible flexibility of output. The other major consideration in deciding what type of plant ought to be installed was the coke to be made. The coke sold generally in the Sheffield area is from the local coking plants. These three considerations, the flexibility of output of gas, the type of coke suitable for the local market and the possibility of using a wider variety of coals, which stems from it, were the main considerations affecting the choice of plant.

Coke oven plant best meets these requirements, and would have been chosen had there been room for such a plant. The best alternative was then considered—the intermittent vertical chamber—which is in effect a coke oven on end.

By heating a coke oven plant alternatively with producer gas and its own coal gas its output can be varied from 100% down to about 50%. A heating system on the same lines for the intermittent vertical chambers, was therefore asked for, but the contractors were not then prepared to modify their standard design. It was necessary to have a system, therefore, by which coal gas could meet the greater part of the heating requirements at week-ends and at other times of low gas consumption.

The importance of electricity on a modern gasworks cannot be over-emphasised and, although there was a 6,000 volt supply into Car House, this was inadequate for future requirements, and two separate 11,000 volt supplies, either of which would be adequate to meet the maximum demand, were therefore brought into the works. This work was carried out by the Central Electricity Authority. The grid line still crosses

the site and may transmit current generated on the Car House works.

The base load gas to be purified daily at this works, when the extension is completed, will be 6 mill. cu.ft. of coke oven gas and 14-15 mill. cu.ft. from the intermittent vertical chambers. The Board, therefore, decided to install two units, each of 10 mill. cu.ft. per day, of Balfour Lecocq tower purifiers, complete with mechanical oxide handling plant. Due to the relatively low sulphuretted hydrogen content of the incoming coke oven gas and the peculiar week-day/weekend-day load factor, it was decided that the installation would handle intermittent over-loading by the manufacture of carburetted water gas. But before the box purifiers could be dismantled one unit of tower purifiers had to be erected and put into operation.

The I.V.C. plant now at work carbonises 600-650 tons of coal per day and produces 8.5-9.5 mill. cu.ft. of gas. It comprises 84 Woodall-Duckham 3¼ ton intermittent vertical chambers in four benches, each of 21 chambers, all built on mass concrete foundations. The settings are designed for heating either with producer gas generated from coke in Humphreys and Glasgow producer gas plants or with coal gas. The producers are large enough to supply sufficient gas for dilution of the incoming coke oven gas and the gas from the intermittent vertical chambers. Each bench is complete with a waste heat boiler capable of generating 5,150 lb. of steam per hour at 200 lb. per sq. in. and superheated to 600°F.

The coal handling plant is designed to handle all types of coal from run-of-mine to washed slacks at 200 tons per hour and includes a wagon tippler suitable for the new 24½ ton capacity mineral wagons.

The coke from the chambers is discharged into a coke skip. After quenching the skip is transported and the coke placed on the wharf where, as in coke oven practice, there is provision for spot quenching. By careful control of the quantity of water used in quenching, the moisture content in the coke can be satisfactorily controlled.

Ancillary Plant

The gas is brought from the I.V.C. house in two separate streams, two benches of I.V.C. per gas stream, each rated at 4½ mill. cu.ft. per day. It then passes through primary water tube condensers, Roots-type exhausters, secondary condensers, electrostatic detarrers and ammonia washers, before it is metered. Producer gas for dilution is handled and metered separately before it is mixed with the coal gas streams in a common 42 in. diameter main at the inlet to the naphthalene scrubber. The mixed gases are passed through a tower scrubber for the removal of naphthalene. The scrubber, constructed from mild steel plate, is 9 ft. diameter and 50 ft. high and is fitted with timber laths, closely spaced to ensure even distribution of the gas and maximum area of contact. The gas enters at the bottom and leaves at the top and the wash oil is distributed over the timber filling at the top of the scrubber at a rate of approximately 7,000 gal. per hour.

The tower purifier installation comprises two units, each rated at 10 mill. cu.ft. per day. Each unit consists of five working towers and each tower contains 18 trays. There is a stocking tower for storage of the trays when they are removed from a tower and a stocking frame for holding the trays charged with fresh oxide.

The crude gas from the nearby Dalton Main and Rotherham Main coking plants of the National Coal Board and the carburetted water gas join the gas stream from the intermittent vertical chambers at the inlet to the purifiers.

The mixed gas stream leaving the tower purifiers passes through two tower scrubbers for the removal of benzole and sulphur. These tower scrubbers, which have 48 in. diameter gas connections, are constructed of mild steel plates riveted together and are 9 ft. diameter and 95 ft. high.

The two vacuum-type stripping stills, each 9 ft. diameter, constructed of cast iron, distil the benzolised oil, and the benzole plant, with an oil circulation rate of 30,000 gal. per hour, is designed for maximum benzole recovery of approximately 2½ to 3 gal. per ton of coal carbonised and for desulphurisation of the gas.

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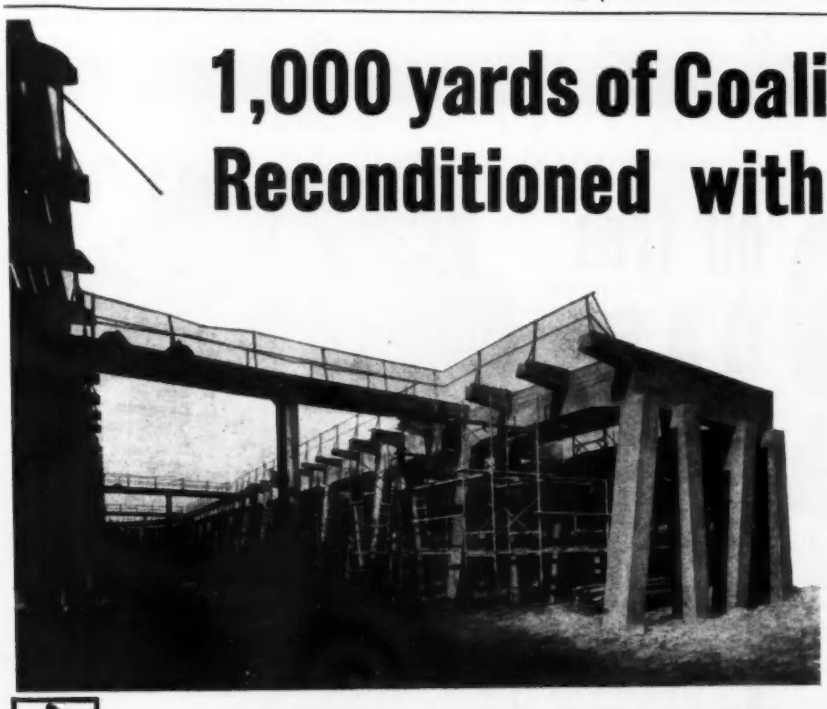

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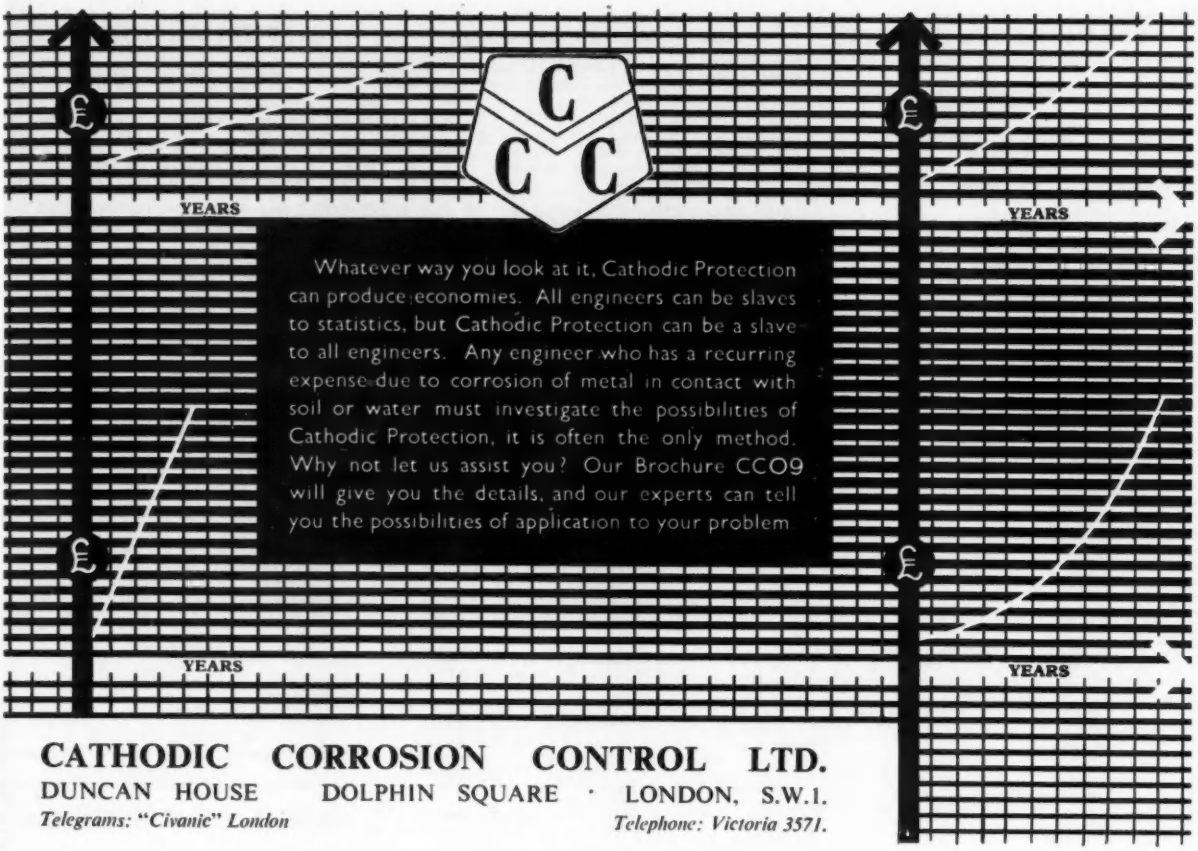

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APPLICATIONS are invited for the above pensionable appointment at a salary within Grade A.P.T. 11 (£850/£975 p.a.).

The successful applicant will be responsible to the Station Engineer for all chemical control connected with the operation of the works and for carrying out special investigations which may be required from time to time. Applicants must possess suitable technical qualifications and have had sound experience and training in chemical control of a large gasworks.

Detailed applications, giving the names of two referees, should reach the General Manager, N.W.G.B., Manchester Group, Town Hall, Manchester, 2, within 14 days.

WEST MIDLANDS GAS BOARD

WORCESTERSHIRE/HEREFORDSHIRE DIVISION
VACANCY FOR
MAINS INSPECTOR—REDDITCH GROUP

CANDIDATES must possess a sound knowledge of both high and low pressure main and service laying practice. They should be capable of supervising all aspects of contractors' work and be able to prepare records showing the position of apparatus which has been laid or installed.

The salary will be in accordance with A.P.T. Grade 5 (£575-£655 per annum) of the National Salary Scales.

The post is pensionable, and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and details of training and experience, together with the names of two referees, should be addressed to Mr. C. F. W. Rendle, Divisional General Manager, West Midlands Gas Board, Newtown Road, Worcester, to reach him not later than January 4, 1957.

J. C. INGRAM,
Secretary to the Board.

NORTH EASTERN GAS BOARD

HUDDERSFIELD/HALIFAX GROUP
LEEDS ROAD WORKS, HUDDERSFIELD
ASSISTANT WORKS MANAGER

APPLICATIONS are invited from suitably qualified persons for the above position at a salary within Grade A.P.T. 12 (Provincial 'A') (£900-£1,025 per annum) of the Salary Scales agreed by the National Joint Council for Gas Staffs.

Applicants should possess the Higher Grade Certificate of the Institution of Gas Engineers in Gas Engineering (Manufacture), or an equivalent qualification, and have experience of modern Gas Engineering practice. They should also be fully conversant with the operation of Continuous Vertical Retorts, Automatic Carburetted Water Gas Plant, together with modern ancillary and electrical equipment.

The successful applicant will be required to pass a medical examination and to join the Board's Staff Pension Scheme.

Applications stating age, experience, qualifications and present position, should be addressed to the Group General Manager, North Eastern Gas Board, Huddersfield-Halifax Group, Gas Works, Huddersfield, so as to arrive not later than January 14, 1957.

J. C. GARDNER,
Secretary.

NORTH WESTERN GAS BOARD

APPLICATIONS are invited from suitably qualified persons for the following pensionable appointments:—

WIRRAL GROUP

Mechanical Superintendent—Birkenhead (Salary within Grades A.P.T. 8/9—£710/£855 p.a. according to qualifications and experience)

The person appointed will be responsible to the Station Engineer for the maintenance of mechanical plant and buildings on the works, for which purpose he will have charge of a suitable staff and workshop facilities.

Application forms, together with further details of the post, are obtainable from the General Manager, N.W.G.B., Wirrall Group, Hind Street, Birkenhead, and should be returned by Thursday, January 10, 1957.

MANCHESTER GROUP

Technical Assistant (Production)—Partington Works. (Salary within Grade A.P.T. 6—£610/£690 p.a. according to qualifications and experience).

Applicants should be capable of undertaking responsibility for the operation of carbonising units under the control of the Carbonising Superintendent. Experience in vertical and/or horizontal retort practice is essential and operational experience on C.W.G. plants would be an advantage.

Detailed applications, in envelopes endorsed "Vacancy No. 72" and giving the names of two referees, should reach the General Manager, N.W.G.B., Manchester Group, Town Hall, Manchester, 2, within 14 days.

EAST MIDLANDS GAS BOARD

LINCOLNSHIRE DIVISION
TECHNICAL ASSISTANT (DISTRIBUTION)
GRIMSBY GROUP

APPLICATIONS are invited for the above appointment which will be made within Grades APT. 5/6/7 of the National Salary Scales for Gas Staffs (£575/£750).

Applicants should hold at least the Ordinary Grade Certificate in Gas Engineering (Supply) and have a thorough knowledge of modern methods of distribution, including high and low pressure systems, and should be capable of carrrying out the detail work in connection with the planning and estimating of new work.

The position is pensionable, and the successful applicant will be required to pass a medical examination.

Applications, stating age, and giving details of education, training and experience, together with the names of two referees, should be addressed to the undersigned to arrive not later than January 12, 1957.

BERNARD CLARKE,
Divisional General Manager.

Belle Vue House,
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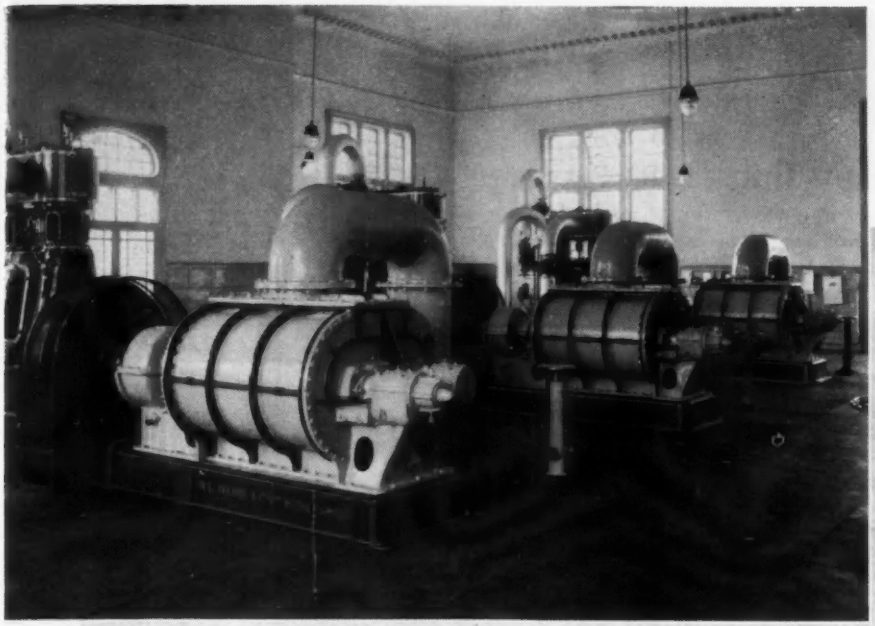

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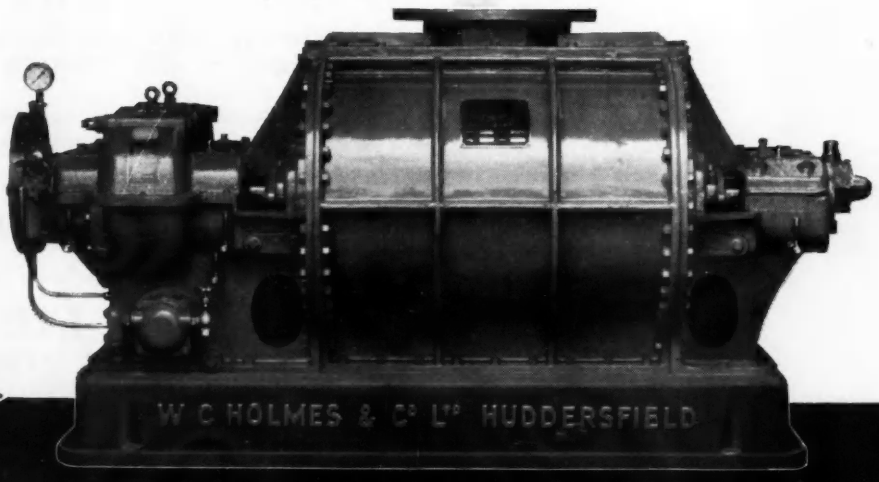

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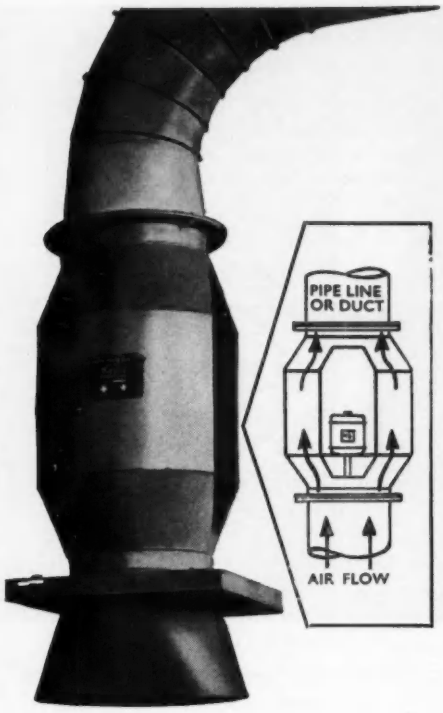

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